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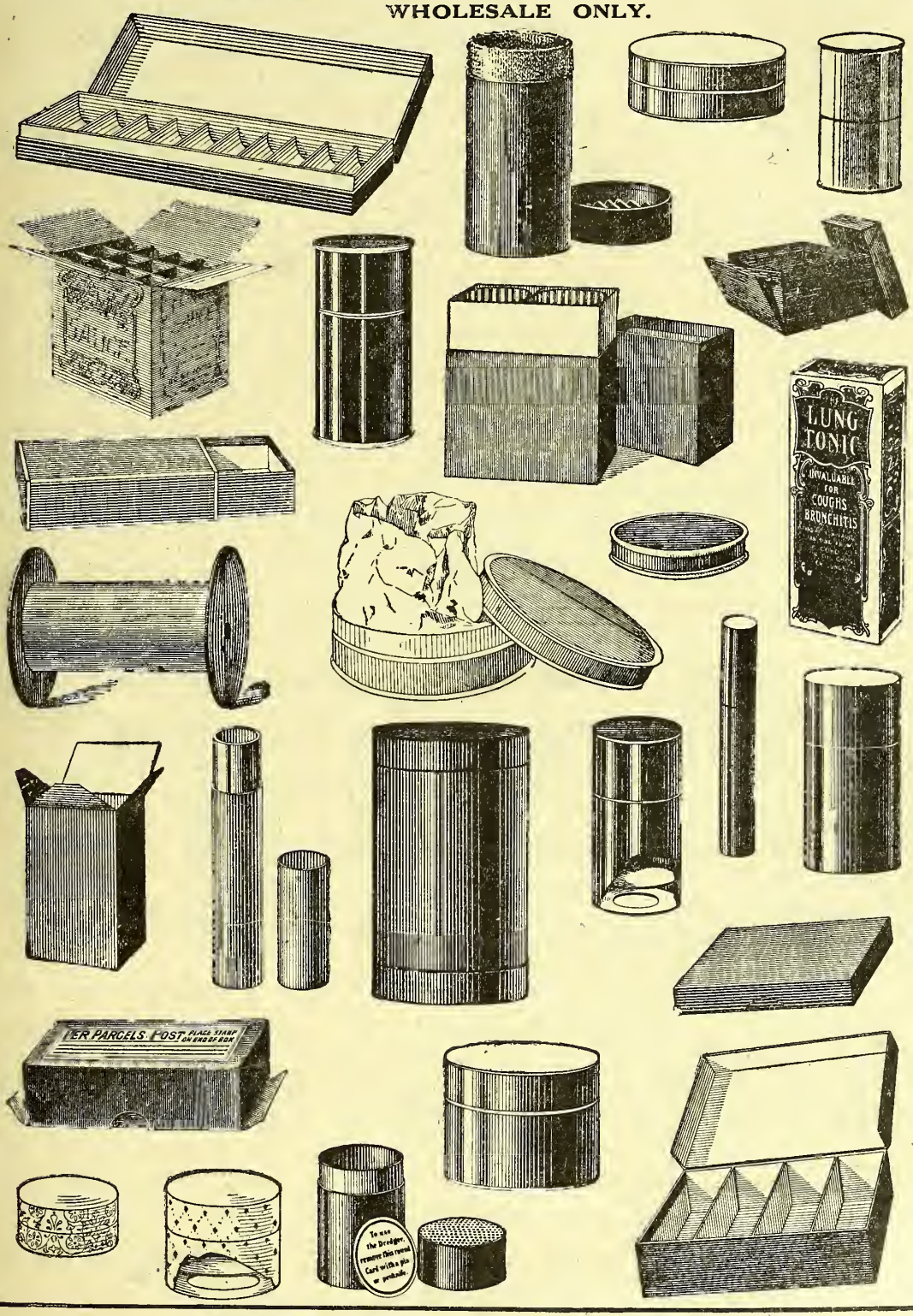

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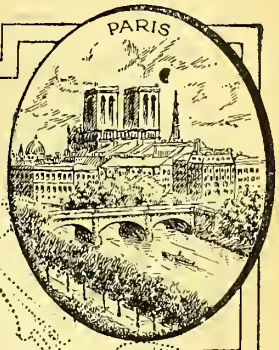

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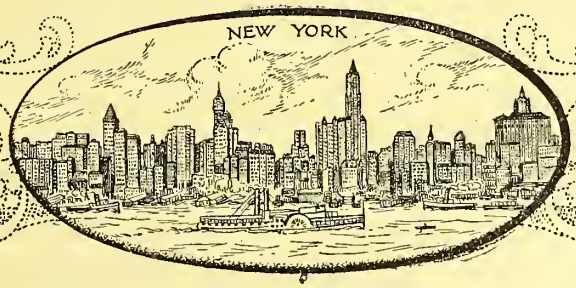

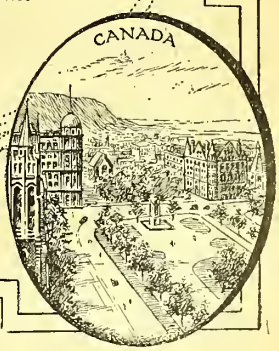

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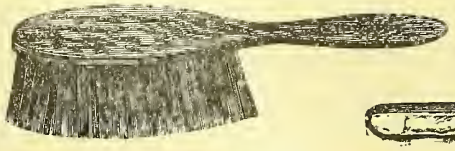

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CARBOLIZED SEED DRESSING OR FARMERS' FRIEND.
CHEMISTS' OWN FORMULAS.
LIQUID SEED DRESSING, NON-POISONOUS.
GUARANTEED GENUINE SULPHATE OF COPPER.
ALSO AGRICULTURAL STRENGTHS.

List and Samples on Application.

TOMLINSON & HAYWARD, LTD., AGRICULTURAL CHEMISTS LINCOLN

POTATO SPRAYING

BURGUNDY MIXTURE
BORDEAUX MIXTURE } *and all necessary materials.*

TOMLINSON & HAYWARD, Ltd., LINCOLN.

HAYWARD'S

Eureka WEED KILLER

Powder and Liquid.

New rail regulations, May 1st, have materially altered the conveyance of Weed Killer. We have arranged to meet the requirements. Write to us for particulars.

Please write for Lists, Terms, etc.

The Chemist's Favourite Brand.
Easiest to sell. Sales through Agents.

TOMLINSON & HAYWARD, LTD., LINCOLN.

SEASONABLE
Summer Specialities

The Sales of which are Exclusive to the Drug Trade.

The Pharmacist "abreast of the times" can attract business by making a display of something new in a SUMMER DRINK—

TONIC HERB BEER TABLETS

One tablet (slightly crushed and added to ½-pint water) produces one glass of excellent beer—FOAMING, STIMULATING, REFRESHING—identical with the best beer in taste and appearance—everything but the alcohol.

Tastefully packed, retailing at **1/6** per box of 25 tablets, **12/-** per dozen boxes. Attractive Showcards.

Include a three-dozen trial order with your next goods. We shall be ready for your "repeats."

"EASIPED" FOOT BATH TABLETS

A Refresher of the Feet, with Distinctive Qualities.

The relaxed weary condition of the feet on warm days, due to long standing, is pleasantly and successfully remedied by the use of "**EASIPED**" **FOOT BATH TABLETS.**

IMMEDIATE IN ACTION, PERMANENT IN RESULTS.

In Attractive Package—Wholesale Prices—

5/- per dozen bottles containing 20 tablets.
8/- " " 40 "

ISSUED FROM THE LABORATORIES OF

C. R. HARKER, STAGG & MORGAN, LTD.

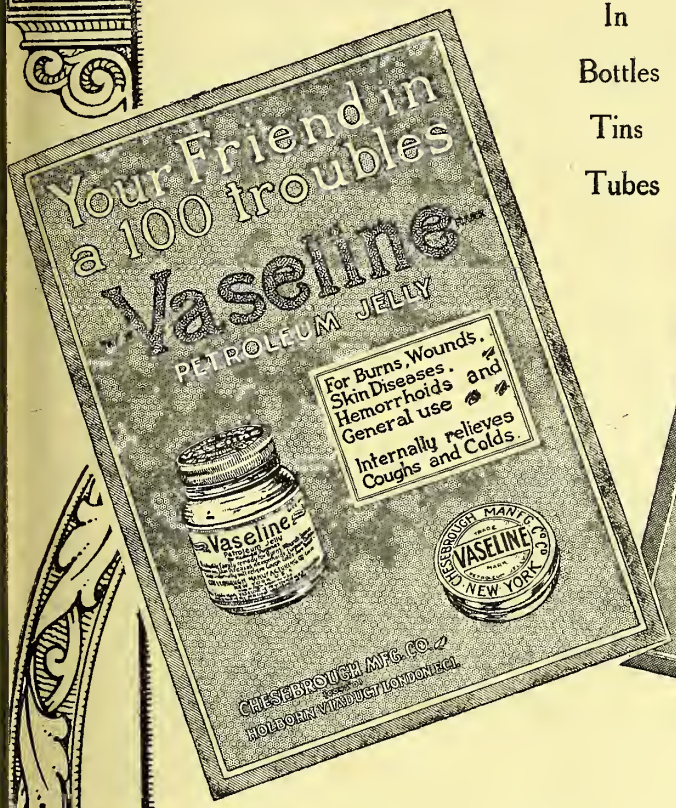
Devon Wharf - - - - Mile End, E. 1.

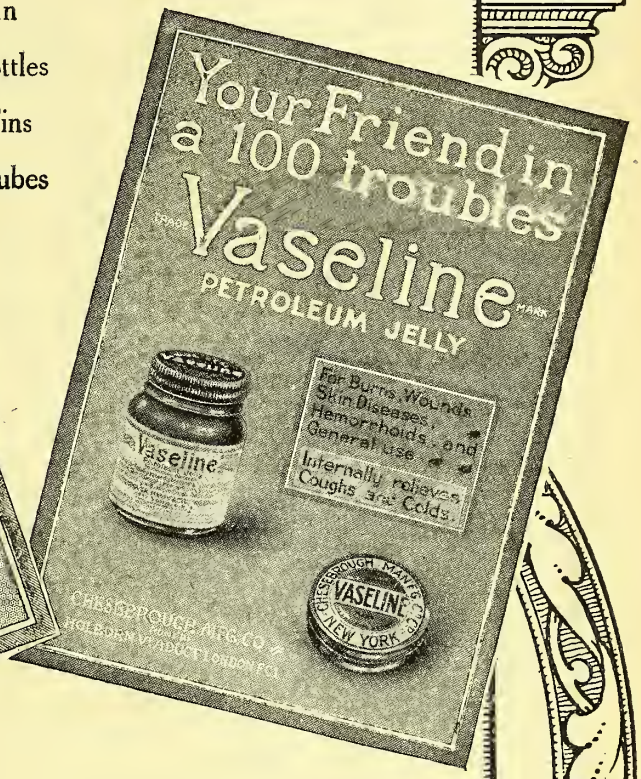
TRADE Vaseline MARK

PETROLEUM JELLY.

Yellow and White

In
Bottles
Tins
Tubes





These Advertisements will appear in all the Leading Magazines and Periodicals during September and October.

Showing at least **75%** PROFIT

Are your Supplies Sufficient ?

Attractive Showcards will be ready shortly.

CHESEBROUGH MFG. CO., CONS.
42 Holborn Viaduct, E.C. 1

"FARRIS'S"

GENUINE WHITE BEESWAX

GENUINE REFINED YELLOW BEESWAX

In ½-oz., 1-oz., 2-oz. and 4-oz. rounds.

PURE ENGLISH REFINED SPERMACETI.

HARD REFINED STEARIC ACID

WAXES of every known kind and for every purpose

The only actual Manufacturing Wax Chandler in the City of London.

CHARLES FARRIS

OFFICES, WORKS and SALE ROOMS:
Helmet Court, Bishopsgate, London, E.C. 2.
WAREHOUSES and STORES:
91 & 93 Bishopsgate, & 12 Wormwood Street, E.C.2.

JOB BROTHERS

GUARANTEED PURE GENUINE

NEWFOUNDLAND NON-FREEZING

MEDICINAL COD LIVER OIL

IS THE FINEST OIL PRODUCED

It is perfection in colour, smell, taste and absolute purity.
Manufactured from the finest fresh Cod Livers on same day as fish caught.

WHOLESALE ONLY

JOB BROS., Manufacturers, Tower Building, LIVERPOOL

Telegraphic Address: "JOB LIVERPOOL" Tel. 1039 CENTRAL

And at ST. JOHN'S, N.F. Established 1780.

Maw's Page

August 21, 1920. No. 462.

Personality

The Mainstay of British Pharmacy

THE Personality of the individual Pharmacist has played an all-important part in the development of British Pharmacy. The finest traditions and the greatest business achievements of the profession have, in the past, resulted from encouraging and developing this personality.

To-day, the business of pharmacy is more a question of personality than ever. The controlling influence of the individual, the personal touch, is apparent in the conduct of every successful pharmacy.

Not only the pharmacist, but the buying public also, have found this personal method of conducting pharmaceutical business by far the most satisfactory. It is certain that further progress in the future can only be achieved by a still further development of the personality of the individual pharmacist. Any attempt to rob pharmacy of its intimate personal nature, to restrict the development of personality, must be foredoomed to failure.

With the firm conviction that future success lies in the direction we have indicated, it is the policy of the House of Maw to use all its efforts to foster the development of the personal nature of pharmacy generally by assisting in the development of the personality of the individual pharmacist.

This simply means that the policy of the House of Maw remains unaltered. By keeping abreast of the demands of the public, by supplying goods of the highest quality at the lowest possible price, by maintaining a free market and imposing no odious restrictions in buying—in short, by respecting the individuality of its patrons, the House of Maw is convinced that it is laying the foundation for even greater success in the future than it has been its pleasure to enjoy in the past.

Pharmacy for the Pharmacist is the watchword of the House of Maw

Telephone: "City 7" (Private Branch Exchange).

S. Maw, Son & Sons, Ltd.,
7/12 Aldersgate St.,
London, E.C.1.

Telegrams: "Eleven Cent, London."

R. MORRISON & CO.

Importers—Exporters—Manufacturers' Agents

CHEMICALS, DRUGS, ESSENTIAL OILS :: FISH AND SEED OILS

2 FEN COURT, LONDON, E.C. 3.

Invite Inquiries from the Wholesale and Shipping Houses for :—

Acetanilide
Acetic Acid
Acetyl-Salicylic Acid
Agar Agar
Aloes
Atropine Salts

Balsam Canada
" Copaiba
" Peru
" Tolu
Beeswax
Belladonna
Bismuth Salts
Boracic Acid
Borax
Botanical Drugs
Bromide Salts

Caffeine Salts
Calcium Lactate
Camomiles
Camphor
Cantharides
Cardamoms
Carmine
Cascara Sagrada
Castor Oil
Chiretta
Chloral Hydrate
Cinnamon
Citric Acid
Cocaine Salts
Cod Liver Oil
Cream of Tartar
Cumin Seed

Dextrine
Digitalis Leaves
Egg Yolk
Ergot of Rye
Farina
Formaldehyde
Gentian Root
Glycerine
Glycerophosphates
Gum Arabic
" Benzoin
" Myrrh
" Tragacanth
Henbane Leaves
Hexamine
Honey
Insect Flowers
Insect Powder
Iodide of Potash
Ipecacuanha
Jalap
Juniper Berries
Liquorice Juice
Liquorice Root
Malt Extract
Manna
Menthol
Methyl Salicylas
Morphia Salts
Olive Oil
Orange Peel
Orris Root
Otto of Rose
Oxalic Acid

Pepsin
Phenacetine
Phenolphthalein
Podophyllin
Quicksilver
Quinine Salts
Rhubarb
Saccharine
Safrol
Saffron
Salicylic Acid
Salicylate of Soda
Salol
Saltpetre
Santonine
Sarsaparilla
Senega Root
Senna
Spermaceti
Starch
Stramonium
Strychnine Salts
Sugar of Milk
Sulphate of Copper
Sulphur Flowers
" Precipitated
" Roll
Sulphonal
Tannic Acid
Tartaric Acid
Thymol
Vanillin
Vanilloes
Vegetable Wax

ESSENTIAL OILS

Aniseed
Bergamot
Cajuput
Cassia

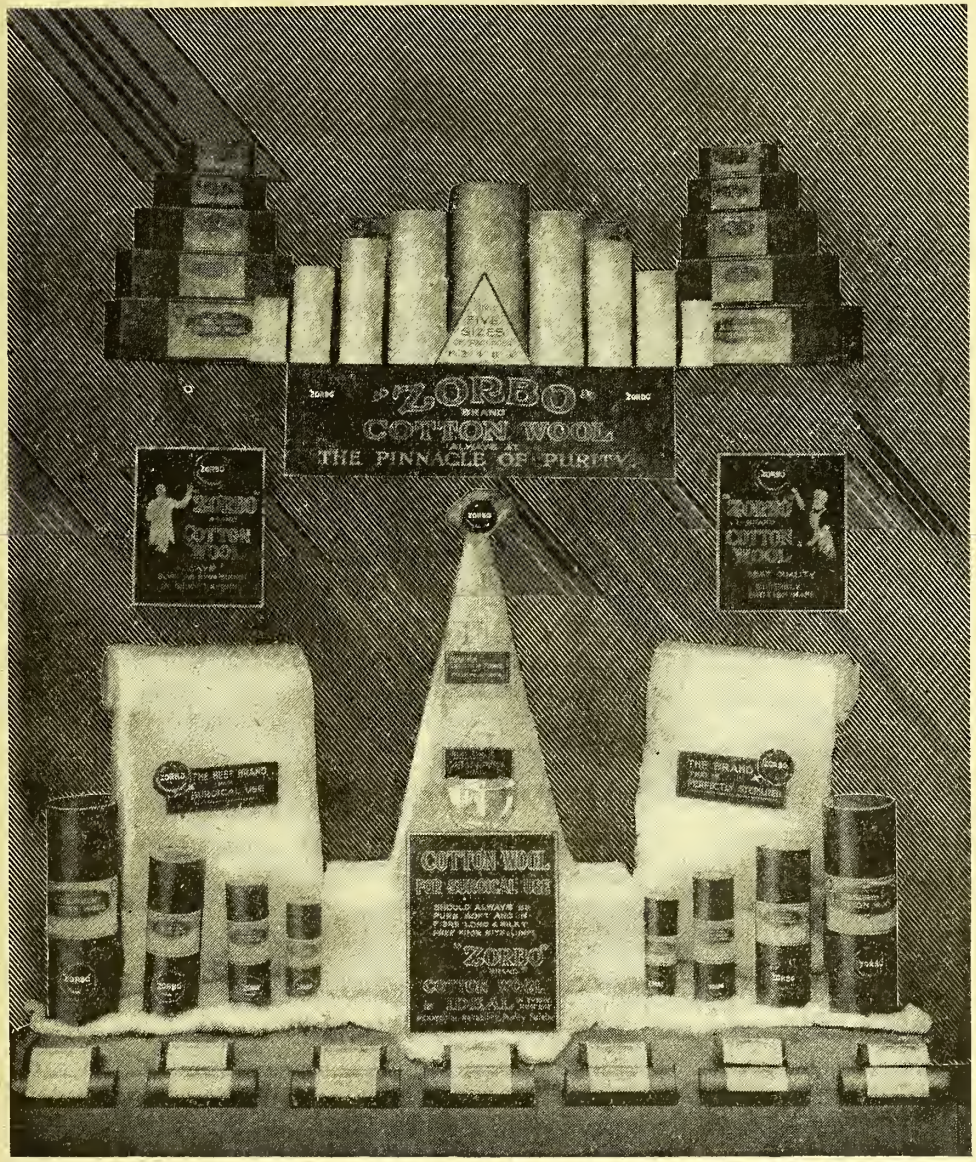
Cedarwood
Citronella
Eucalyptus
Lemon

Orange
Peppermint
Sandalwood

THIS IS TO SHOW YOU WHAT AN EFFECTIVE WINDOW DISPLAY CAN BE MADE WITH "ZORBO" Regd. Brand ABSORBENT COTTON WOOL.

— BLACK SERIES —

The Packing of this Series is Superb, and in consequence only the **BEST** Quality Wool is used. Displayed with a background of rich red velvet or plush the Series will do credit to your pharmacy.



BLACK PACKETS. Gold Label and Red Seal. 5 sizes. 1 oz. to 1 lb.

BLACK CARTONS. Gold Label and Red Seal. 5 sizes. 1 oz. to 1 lb.

CUTTER LID TINS. Hermetically sealed, containing **Sterilized Wool** (superfine quality). Black Wrapped, Gold Label and Red Seal. 4 sizes. 2 oz. to 1 lb.

Prices as already quoted in this Journal or will be sent together with sample on request.

SOLE *Manufacturers and Proprietors of "ZORBO" Regd. Brand—*

ROBERT BAILEY & SON, Ltd. Marriott Street Mills - STOCKPORT
151 to 157 Goswell Road, LONDON, E.C. 1

HARRO-SUL-WA

Harrogate Sulphur Water

THE ONLY TOILET REQUISITES IN THE WORLD

made with the

HARROGATE NATURAL SULPHUR WATER

freshly drawn from our own private springs of which we have the monopoly.

TRADE TERMS: 50% off Retail Prices and 5% cash or 2½% one month.

CARRIAGE PAID over £2. Small lots by return of post. Goods exchangeable if required.

INTRODUCTORY OFFER.—Until Sept. 1st an extra 15% provided there is an agreement to give our goods a good window display.

Harro-sul-wa goods are made in Harrogate, and are of Harrogate quality.

Massage Creams, Day & Night Creams, Complexion Wax, Skin Lotions, Dental Creams, Shaving Creams, Soaps, etc.

THE HARRO-SUL-WA TOILETS

30 PARLIAMENT ST., HARROGATE

AYRTON'S WEEKLY PAGE 15

It is not too early to order

Hot Water Bottles

Although prices are likely to remain fixed for a while, there is the possibility of a shortage of supplies, and we strongly advise you to place your winter requirements now.

Grey indiarubber, best IXL quality, extra wide strong seams, well-fitting nickelled stoppers with spare washer, fully guaranteed. A light and well-made bottle at competitive prices.

Contracts of 3 dozen assorted lots ...	per lb.	**8/2**
" " 1 " " " ...	"	**8/3**

Sizes	8x6	10x6	10x7	10x8	12x6	12x8
Each ...	**4/9**	**5/3**	**5/9**	**6/-**	**5/7**	**6/9**

Sizes	12x10	14x8	14x10	16x10	16x12
Each ...	**7/4**	**7/2**	**8/9**	**9/9**	**10/10**

Well-printed Showcards, as per illustration, can be supplied with all orders.

Covers

for I.R. Hot Water Bottles

First quality Plushette, in scarlet or sky blue.

Sizes	8x6	10x6	10x7	10x8	12x6	12x8
Each ...	**1/7**	**1/9**	**1/10**	**2/5**	**1/11**	**2/8**

Sizes	12x10	14x8	14x10	16x10	16x12
Each ...	**3/2**	**3/2**	**3/6**	**3/11**	**4/7**

We can also supply in Ripple Flannelette or Felt.

These Covers are made in our own workrooms, and the workmanship and material are fully guaranteed.

AYRTON, SAUNDERS & CO. LTD.

Manufacturing Chemists **LIVERPOOL**

A Money-Box on your Counter

SHOW SANAGEN on your Counter, Mr. Chemist. Every tin proves itself a money-box on your Counter—for every sale of SANAGEN means a 50%-on-what you-paid-for-it-profit.

SANAGEN Advertisements in the principal and most influential papers make continual sales, thus assuring you an ever-increasing 50% Profit leaven in your business.

ORDER FROM YOUR WHOLESALER.

THE ALWAYS BRITISH NERVE FOOD

San-a-gen

SEE THESE SIZES, PRICES & PROFITS :

	4-oz. Size	
Costs 2/-	**Sells 3/-**	**PROFIT 1/-**
	8-oz. Size	
Costs 3/4	**Sells 5/-**	**PROFIT 1/8**
	16-oz. Size	
Costs 6/4	**Sells 9/6**	**PROFIT 3/2**

Sales-aiding Literature and striking Business-bringing Showcards and Window Displays supplied with orders, or gratis and post free on request to—

SANAGEN CO. LTD.

Sheepcote Lane, Battersea, London, S.W.1.

Telephone: Latchmere 4363.

Sales Agents for Northern Counties and Scotland:

H. PENNEY & CO.,
Royal Buildings,
NEWCASTLE-ON-TYNE

Re-introduction of the famous

BLACK CURRANT & GLYCERINE PASTILLES

(KERFOOT)

DURING the war the difficulty of obtaining deliveries of fruit and glycerine made it necessary to withdraw this famous pastille, but now our stock of real blackcurrant juice has been replenished and Blackcurrant & Glycerine Pastilles (Kerfoot) are once more available.

Blackcurrant & Glycerine Pastilles (Kerfoot) are sold in bulk, price 4/- per lb., and in tins at the following prices:—MARBLE: 9d. size, 5/- doz., 1/4 size, 10/- doz. GOLD-LACQUERED: 2 oz. 8/6 doz., 4 oz. 16/- doz.

THOMAS KERFOOT & Co. LTD.,
BARDSLEY VALE, LANCASHIRE,
& Bardsley House, London, N.1
ESTABLISHED 1797.

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FINEST **BLACKS** AND

COLOURS

(ALL SHADES)

CARAMEL COLOUR

IN POWDER.

Guaranteed Harmless.

50

times the concentration of Liquid Caramel.

Sample on application.

Soluble in

WATER SPIRIT
OIL TURPS
WAX BENZOLINE
GLYCERINE NAPHTHA
PETROLEUM CREOSOTE
and
IN FACT—ANYTHING.

BLACK FOR INK.

MARKING INK.

ETERNITE

A combined Stain and Preservative for Wood

HOUSEHOLD DYES.

RHEUMSOL BATH SALTS

In 1/- Tins.

WILLIAMS BROS. & CO.

Hounslow, Middlesex.

CGCo Ltd TRADE MARK

"SANOID" BORACIC SOCKS

Literally sell themselves

Many Chemists have enjoyed the ready sale of Boracic Socks which Literally Sell Themselves.

8/6 per dozen pairs.
99/- per gross pairs.

RETAIL PRICE 1/- per pair.
ON P.A.T.A. LIST.

Sample Pair Post Free on Application.

Facsimile of Showcard

Cuxson, Gerrard & Co.

LIMITED,

OLDBURY, near Birmingham

Foreign and Colonial Orders Invited.

School of Pharmacy

OF THE

PHARMACEUTICAL SOCIETY

The School provides systematic courses of instruction for the Qualifying and Major Examinations of the Pharmaceutical Society. Both Courses commence in October, the Minor Course continuing until the end of June, and the Major Course until the end of March in the following year.

The School is quite full for next session, and no further applications can be received.

THE DEAN OF THE SCHOOL

(Professor Greenish)

17 BLOOMSBURY SQUARE, W.C.1

Royal Veterinary College

CAMDEN TOWN, LONDON, N.W.1.

(Founded 1791.)

PROFESSOR SIR JOHN McFADYEAN, M.B., B.Sc., LL.D., M.R.C.V.S., Principal and Dean.

The attention of parents and guardians is called to the excellent prospects which the Veterinary Profession offers to young gentlemen of good education.

The demand for Veterinary Surgeons, both for private practice and for public appointments, is greatly in excess of the supply.

Complete courses of instruction are given for the Diploma of the Royal College of Veterinary Surgeons and the B.Sc. Degree in Veterinary Science of the University of London.

Full particulars of Prizes (including the "Clement Stephenson Entrance Scholarship" of £80 per annum), Fees, etc., are given in the College Calendar, copies of which may be had on application to

THOMAS C. WIGHT, *Secretary.*

Government Scheme for Demobilised Officers and Men

BRITISH OPTICAL INSTITUTE, LTD.

Fern Lodge, 20a Grove Road - BRIXTON, S.W. 9.

TECHNICAL INSTRUCTION IN OPTICS.

Day and Evening Classes in preparation for all Optical Examinations. Well-thought-out and successful Postal Courses for Provincial, Colonial and Foreign Students.

CLINIC, EXPERIMENTAL & LABORATORY WORK.

The British and Colonial Governments, through the Ministry of Lahour, have decided to send Demobilised Officers and Men, as well as Disabled Men, to the Institute, who are desirous of taking up a new career, or of improving their qualifications, for Special, Full or Part-Time Course of Training.

For further particulars, fully detailed Prospectus, and the necessary information in connection with the above Scheme, apply to the Principal, Dr. MAX COQUE, B Sc.

Telephone: Brixton 677.

Battersea Polytechnic, London, S.W.11.

Principal - - R. H. PICKARD, D.Sc., F.R.S.

Next Session begins September 21, 1920.

Complete Full-Time Day Courses in Chemistry, Physics, Botany and Pharmacy subjects, September to July, for the Qualifying Examination of the Pharmaceutical Society, and the Apothecaries' Hall examination. Students may attend part time Day and Evening Classes in Chemistry and Physics.

Evening Classes in Pharmacy and Dispensing.

Practical Drug Assay and Microscopy: Tuesday, 7.15 to 9.45, for "Major" Students, and for Institute of Chemistry examinations.

Pharmaceutical Botany: Thursday, 7.15 to 9.45.

Materia Medica Pharmacy and Dispensing: Wed., 7.15 to 9.45.

Fee for each afternoon and evening, per week, per session, £1.

For Evening Courses in Bacteriology, Food Analysis, Chemistry and Physics, see abridged Calendar, gratis on application to the Secretary.

THE SCHOOL OF OPTICS, LTD.

2 GUILFORD PLACE, W.C. 1.

Official Tuition for the Examination of the Spectaclemakers Company.

Full-time and Part-time Courses in General and Visual Optics and Sight-Testing.

The School is officially recognised by the Ministry of Labour for the training of ex-service and disabled men.

Prospectus and full particulars on application.

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The Right Hon. Viscount HILL.

Director of Examinations:
The Right Hon. Sir WILLIAM HART-DYKE, Bart., M.A. (Past-Master).

Official Instructor:
Mr. LIONEL LAURANCE.

Prospectus of Examinations and Syllabus now ready.

The next Examination will be held in November. Entries close September 30.

APPLY TO—

The Clerk of the Company and Secretary to the Certification Scheme, 14 Temple House, Temple Avenue, London, E.C. 4.

South-Western Polytechnic Institute

PHARMACY DEPARTMENT

COMPLETE DAY and EVENING COURSES

for the Minor, Major and Apothecaries' Hall Examinations

COMMENCE on SEPTEMBER 27.

Inclusive Fee for Day Course - - £5 per term of three months.
Inclusive Fee for Evening Course - 30/- per session of 9 months.

Further particulars may be obtained from the Secretary—

South-Western Polytechnic, (Room 2) Manresa Rd., Chelsea, S.W. 3

CITY OF LONDON COLLEGE,

White Street and Ropemaker Street, Moorfields, E.C. 2.

MICHAELMAS TERM commences SEPTEMBER 27.

Classes and Laboratory Work in Chemistry. Special preparation for the Examinations of the Pharmaceutical Society. Courses on Commercial Products: Metals, Oils, Textiles, Cereals, etc. Full particulars gratis on application to DAVID SAVAGE, *Secretary.*

PRELIMINARY EXAMINATIONS.

MEDICAL.
DENTAL.
PHARMACY.
VETERINARY.

These EXAMINATIONS, conducted by the EDUCATIONAL INSTITUTE of SCOTLAND, will be held in EDINBURGH, GLASGOW, LONDON, LIVERPOOL, and DUBLIN, in MARCH, JULY, SEPTEMBER and DECEMBER of each year.

Prospectus from HUGH CAMERON, M.A., 47 Moray Place, Edinburgh. Calendar containing specimen Examination Papers, Two Shillings.

LEEDS TECHNICAL SCHOOL

Principal—R. E. BARNETT, B.Sc.

The Day Course in Chemistry, Physics, and Botany for Part I of the Qualifying Examination commences September 6, 1920.
Evening Classes in Chemistry, Physics, Botany, Pharmacy and Materia Medica commence on September 20.
Special Evening Class in Bacteriology for qualified Pharmacists.
Day Course, in co-operation with the Leeds Public Dispensary, for the Assistant Dispenser's Examination.
Prospectus post free on application to the Principal.

Education Offices, LEEDS. JAMES GRAHAM, Director of Education.

University of Manchester SCHOOL OF PHARMACY.

Lecturer in Pharmaceutics: JAMES GRIER, M.Sc., Ph.C.

Courses for the Qualifying & Major Examinations.

These Courses extend over six or nine months. **Inclusive Composition Fee** For six months, **21 Guineas**; for nine months, **30 Guineas.** Arrangements can also be made under certain conditions for one whole day per week. A complete two years' part-time course for the Qualifying Examination is given in conjunction with the Municipal College of Technology. (Fees and other particulars on application). **The Manchester Scholarship** and the **Fairfield Scholarship** are tenable at this University.

Degree Courses for Pharmaceutical Students.

Pharmaceutical Students who have passed the Matriculation Examination of the University or its equivalent may now enter for a Degree Course in Science, taking concurrently the Courses for the Qualifying and Major Examinations. Several **Entrance Scholarships** are open to Students entering on these Courses, and are available for competition on the completion of apprenticeship.

SPECIAL COURSES

in **Pharmacology** and in the Chemistry and Microscopy of Drugs are arranged for the Final Examination of the Institute of Chemistry in Branch (*e*)—The Chemistry (including Microscopy) of Foods, Drugs and Water. A three months' course in **Bacteriology** is open to Major Students.

The Session commences in October.

For Prospectus apply to the Registrar.

Westminster College of Pharmacy

Established 1874. *STAFF:* Phone: 1728 BRIXTON.

G. S. V. WILLS and P. H. WOODNOTH (Principals).
W. A. KNIGHT, Ph.C., Pereira Medallist: J. G. EVERETT, Ph.C., Council Medallist:
T. E. DUNSTAN, M.P.S.

JULY EXAMINATIONS, 1920.
Westminster Students entered, 84.
Passed Part 1, 51 (60%) | Passed Part 2, 37 (44%)

Benches are now being reserved for a six months' course commencing October 13, in preparation for April Examination, 1921.

Revision Course to October Examination commenced August 16.

Students may join this class for separate subjects.——Fee according to requirements.

For Details of Arrangements, Pass Lists and Prospectus,

Apply to THE PRINCIPALS, 190 CLAPHAM ROAD, LONDON, S.W.9.

THE LONDON COLLEGE OF CHEMISTRY, PHARMACY and BOTANY.

Principals:
Henry Wootton, B.Sc. (Lond).
Chas. W. Gosling, Ph.C.

Courses of Training for the Minor and Apothecaries' Hall Examinations.

Particulars from the Secretary:
361 CLAPHAM ROAD, S.W. 9.

BRIGHTON TECHNICAL COLLEGE

Principal: W. Mansergh Varley, M.A., D.Sc., Ph.D.

SCHOOL OF PHARMACY

Head: Henry B. Mackie, M.P.S., Ph.C.

Full courses for the Qualifying and Major examinations of the Pharmaceutical Society.
Strong Advisory Committee of local Pharmacists.
In July 1920, eleven students passed at their first attempt the full Qualifying examination (parts 1 and 2).
Next Course commences October 1, 1920.
A limited number of entries for the Major course can be accepted: the Qualifying course places are fully booked, but applications can be received for entry in October 1921.
FEES: For Qualifying course (whole or either part), £24 for full nine months, or 8 gns. a term.
For Major course 16 gns. for full six months.
25% reduction for Brighton residents.

LIVERPOOL SCHOOL OF PHARMACY,

2 Blackburne Place
(Opposite City School of Art).

Principal: H. Humphreys-Jones { A.I.C., F.C.S., Ph.C.

Revision Course for October Exam. commenced AUG. 11.

Autumn Session commences OCT. 12.

University College, Nottingham

DEPARTMENT OF CHEMISTRY

Head of the Department - - Professor F. Stanley Kipping, Ph.D., D.Sc., F.I.C., F.R.S.

Courses are held to prepare students for the Degree Examinations of the University of London, and the Associateship of the Institute of Chemistry. Sessional fees £23.

Department of Pharmacy. Students are prepared for the Minor and Major Examinations. Sessional fees £32.

Apothecaries' Hall Diploma. A special course to prepare women students for the Diploma of the Apothecaries' Hall. Sessional fees £14 13s.

Medical and Dental Courses. Students are prepared for the 1st Medical and Dental Examinations of the Universities of London, Cambridge, Edinburgh, Glasgow, Aberdeen and Sheffield, and the First Professional Examination of the Conjoint Board. Sessional fees: 1st Medical £23; Dental £14 13s.

The Prospectus, giving particulars of all Courses and Classes, will be forwarded upon application to the Registrar.

UNIVERSITY OF DURHAM COLLEGE OF MEDICINE,

NEWCASTLE-UPON-TYNE.

The Degrees in Medicine, Surgery, and Hygiene, the Diploma in Public Health, the Diploma in Psychiatry, and the Licence in Dental Surgery of the University of Durham are open to men and women.

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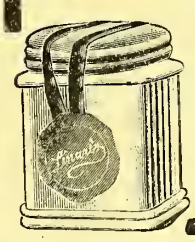

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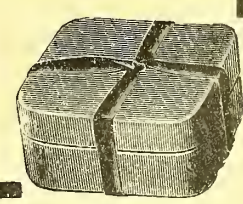

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The Great Plus

BUSINESS THAT IS WORTH WHILE

ASSURED

The 7 Star Business Getters

CRÊME FIAMETTE V nishing Cream in perfection.	1 doz. **12/-**, 13 to doz. Selling price **1/6**.
CONCENTRATED PERFUMES **In tubes.** No. 14, with gilt top 1/6 size, **12/-** doz. **No. 15.** In gilt case, 1/9 size, **12/6** doz. **No. 16.** In silvered metal case, 2/6 size, **18/-** doz.	Assorted Perfumes, 3 doz. on card. Assorted as required.
BRILLANTINE EXOTIQUE **Yellow,** Red and Green. Delicately perfumed.	Large size **12/-**, 13 to doz. Sel ing price **1/9**. Small size **7/-**, 13 to doz. Selling price **1/-**
NORA FACE POWDER **Competitive** and profitable, good seller, **and fine** soft adherent powder, In 6 colours.	1 doz. **9/-**, ½-d z. Bonus on 3-doz. order. Assorted colours. Selling price **1/3**.
POUDRE BERCEUSE DE FLEUR **In dainty** French box, with mirror lid and puff.	1 doz. **14/-**, ½-dcz. Bonus on 3-doz. order. Assorted colours.
NATURAL ENGLISH FLOWERS True Floral Extracts.	Cut Globe Stpd. No. 20. Bottles, Rep. 1 oz. 1 doz. **18/-**; **2/6**. No. 21. 1 doz. Rep. 2 oz., **30/-**; **4/6**. No. 22. 1 doz. Rep. 4 oz., **52/-**; **7 6**.
HENNA SHAMPOO POWDER Artistic ackage. Quantity for 7 Shampoos.	1 doz. **12/-**. Bonus, 1 to doz. Selling price 1/6.

London. 11, Southampton Row, W.C.

Areco Ltd

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LONDON & PARIS.

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"LEHCARESOR."

Papier Poudré

British Made Goods.

Beware of Spurious Imitations

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20 Baker St., Portman Sq., London, W.1.
and in Paris.

WHITE, ROSE, or RACHEL Tints, 4d., 6d., 8d. and 1/4 sizes
Booklets, 2/8, 3/9, 5/-, and 10/- per dozen net respectively.

SUNBURN TINT, 8d. & 1/4 sizes only, 5/- & 10/- per doz. net.

REFILLS to Mirror Cases in White or Rachel ... ... **2/8** per doz. net.
8d. SHAVING PADS, for Use after Shaving (unscented), white only, **5/-** per doz. net.

POPPŒA ROUGE

A most popular line. (Regd.)

Made in booklet form. One size only, viz. **1/-** at **8/-** per dozen net.
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We do not Profiteer

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Push "PERMOL" and make a profit of 33⅓% plus a bonus of 1 doz. tubes per gross.

10/- per dozen post free
Packed in dainty cartons specially arranged for Counter Show.

Guaranteed Absolutely Pure.

PERMOL DENTAL CRÈME

Antiseptic and Cleansing.

The Dainty Dentifrice that will pile up your profits.

FOR Permol PURITY

Registered Trade Mark.

On the P.A.T.A.

Send us a postcard and we will execute your orders in strict rotation.

Special Terms to Wholesalers.

PERMOL PRODUCTS Co., Ltd.

73 HIGH STREET,
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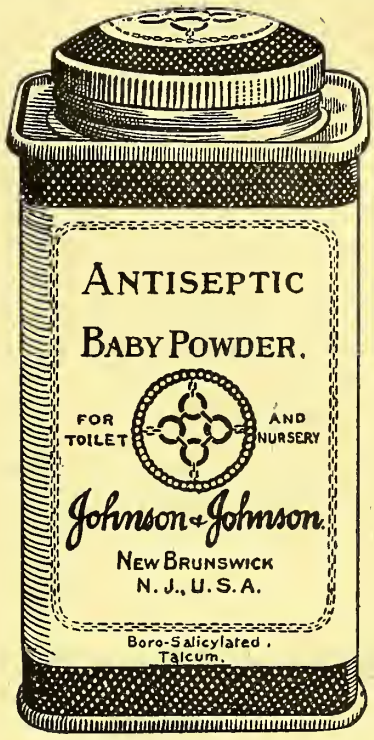
SOLD THE WORLD OVER.



Antiseptic TOILET & BABY POWDER

JOHNSON & JOHNSON
British - Manufacture.

Made from the Best Talcums and Delicately Perfumed.

Bonus given for order of 2 gross and window display.

For particulars apply to—

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TOOTH PASTE "Strong" or "Mild"

THE SUPER PASTE

"Enolin" is also supplied in Powder Form.

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SALES
ALWAYS INCREASING.

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KEEPS AWAY MOTH.
LASTING & FRAGRANT.

PERFUME BRICK

FOR LINEN CUPBOARD AND WARDROBE.
On the P.A.T.A. *Retail Price* **6d.**

WANDA TOILET PUMMICE.
WANDA NAIL POLISH.
WANDA ONE-DROP PERFUME.

Of the Makers:
WILLIS, LOW & DRUIFF, LTD.,
33 Percy St., London, W.1.
AND ALL WHOLESALERS.

KEENOLIA
Hair Cream.

MADE UP IN TWO SIZES:
4 oz. retails at 1/3
8 oz. „ „ 2/-
Attractive Showcards supplied GRATIS.

From all Wholesalers, or direct from Manufacturers.

The . .
"CASSON BRAND"
COLD CREAM
LANOLINE
LAVENDER ICE

THE
CASSON CHEMICAL CO.
LIMITED,
44a WESTBOURNE GROVE, LONDON, W.2.
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Over ten million people see Gibbs Advertising each month

Month in, month out, throughout the year, over ten million people are being persuaded to buy Gibbs Toilet specialities; no wonder the sales are huge—no wonder they are amongst the best paying lines.

Sales are steadily advancing—take care you are not "caught out." Keep a watchful eye on your Gibbs stocks and order reinforcements well before you actually need them.

D. & W. GIBBS, LTD.
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GIBBS
September Announcements
will appear in these influential media.

Scientific Press.

British Dental Journal
Dental Record
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Daily Mail
Daily Chronicle
Evening News
Daily Mirror
Daily Sketch
Punch
Vogue (2 colours)
Bystander (2 colours)
John Bull
Daily Mail Fashions (3 colours)
Coming Fashions
Passing Show

Provincial Press.

Newcastle Evening Chronicle
Manchester Evening Chronicle
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Cardiff Evening Express
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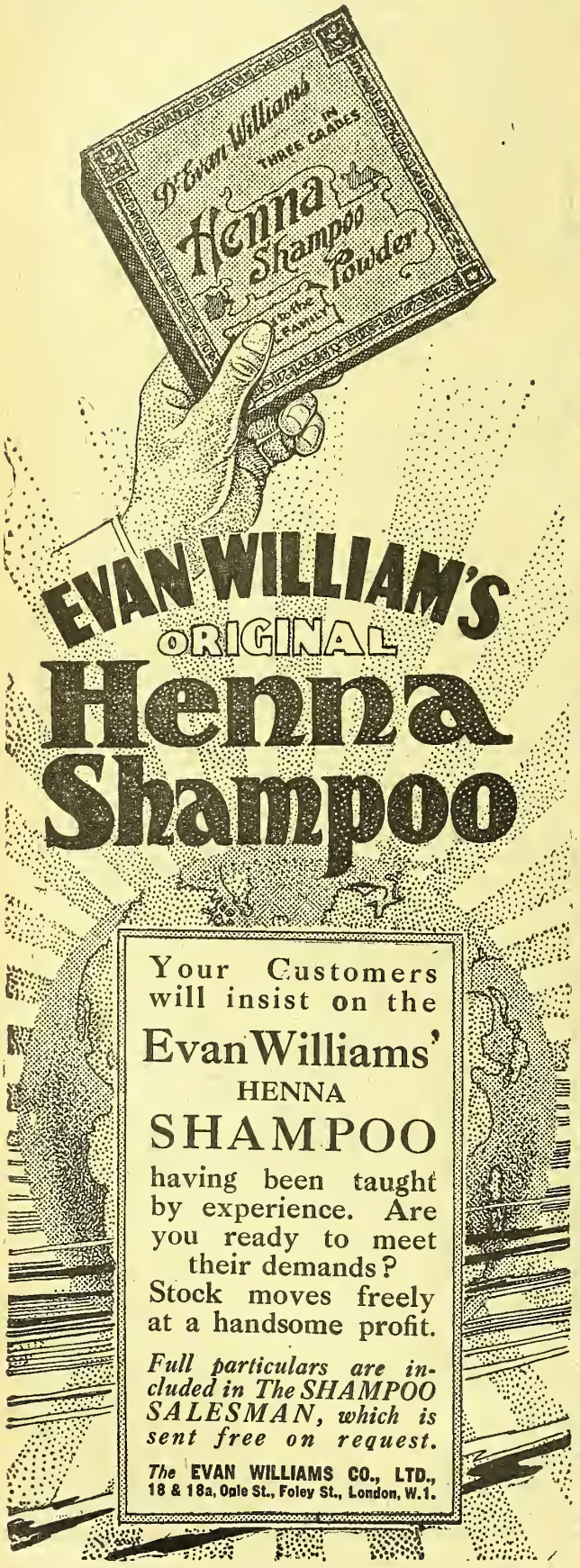
Appealing to upwards of ten million Readers throughout the United Kingdom.



"Jackel's Cream"

(without Grease)
for THE HAIR
Sold everywhere
Established 1883.

"Jackel's Cream" fixes the hair in any desired position; is unexcelled as a dressing and does not soil the headware. It removes Scurf and Dandruff, keeps the scalp healthy, and promotes the natural growth of the hair while maintaining its softness and brilliancy.

Prices for Wholesale and Export Houses on application.

CRYSTALLISED
1/9 CREAM 2/3
Trade Mark attached to each bottle.

Jackel et Cie (of Paris) Ltd.
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"Comet" Vacuum FLASKS.

Every flask tested at the works before dispatch.

Mayfair Chemical Co.,
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Tel. No.: City 3373.
Tel. Add.: "Agenda, Cannon, London."

The Perfect Paste with the Pleasant Flavour.

Anglodol

Dental Paste

A Perfect Dentifrice.
Pleasant to the taste.
Profitable to the Retailer.

Retail Price, 7½d. and 1/3.

Window display terms on application.

ANGLODOL, LTD., BERKHAMSTED.

Telephone: Berkhamsted 138. *Cables and Telegrams:* "Anglodol Berkhamsted."

TRADE TWS THOMAS WAIDE & SONS LTD LEEDS MARK

PRINTING

TO COMMAND SALES.

TO SUIT THE ART CRITIC.

.. TO PLEASE THE ..
PROGRESSIVE CHEMIST.

PRINTING OF EVERY DESCRIPTION THAT IS
... REQUIRED BY THE PHARMACIST ...

TRY THEM! DON'T FAIL!

Thomas Waide & Sons LTD.
CHEMISTS' PRINTERS,
LEEDS, ENG.

SEND US .. YOUR NEXT ORDER OR ENQUIRY. - .

Full set of Samples to Colonies charged 10/6, which is credited on orders of £10 and upwards.

C. DAMSCHINSKY'S

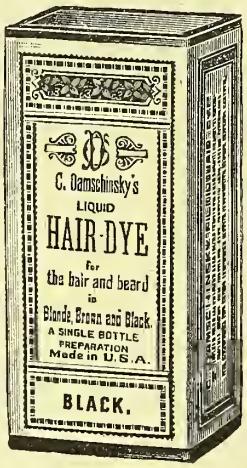
AMERICAN LIQUID DYE.

Single Preparation for the Hair and Beard.

MADE IN
FIVE NATURAL SHADES,
BLONDE, LIGHT BROWN,
BROWN, DARK BROWN,
AND BLACK.

2/- Size 15/- per doz. net.

3/- „ 22/- „ „ „



This excellent Dye has an enormous Sale all over the World.

SIMPLE TO USE.
WILL DYE
RED, GREY OR FADED HAIR
TO THE DESIRED SHADE
IN A FEW MINUTES.
IT IS NOT A BLEACH.
WILL NOT DYE DARK HAIR
LIGHTER.

From all Wholesale Houses or direct from sole British Agents :

OSBORNE, GARRETT & CO., LIMITED,
LONDON, BIRMINGHAM AND GLASGOW.

THE Ogee "OGEE" FETTPOWDER. THE Ogee

THE PREMIER POWDER FOR THEATRICAL USE.

In
White,
Rose,
Natural
and Rachel.

PRICE
12/6
PER DOZEN.

PROPRIETORS OF
THE CELEBRATED "OGEE" BRAND OF GREASE PAINTS,
AND THEATRICAL PERFUMERY.

OSBORNE, GARRETT & CO., LIMITED,
BIRMINGHAM. **LONDON, W.** GLASGOW.

ALLEN & HANBURYS'

Toilet and Medicated Soaps

IT has come to our notice that certain travellers calling upon Chemists state they are in a position to supply soaps conforming in every way with those previously supplied by our friends, Messrs. Allen & Hanburys.

These statements are entirely inaccurate and misleading.

In June, 1919, Messrs. Allen & Hanburys entered into arrangements with us (Edward Cook & Co., Ltd.) to manufacture all Soap hitherto supplied by them to Chemists other than those bearing Allen & Hanburys' name, and issued a circular to their customers containing the following declaration—

> "In this connection we are pleased to inform you that we "have entered into an arrangement with our friends, "Messrs. Edward Cook & Co., Ltd., of The Soaperies, "London, E., who will take over, as from July 1, 1919, the "whole of our business in Soaps manufactured specially for "our customers under their own name, and will be prepared "to supply both Toilet and Medicated Soaps under our "customers' own name and address, and, if so desired, in "the same style of wrapper, etc., as hitherto; thus con-"tinuing the supply of these Soaps, the high-class quality "of which has been for so many years a special feature "of our business."

In the face of the above it is quite impossible for any other Firm to supply soaps which can be correctly described as "the same as formerly supplied by Messrs. Allen & Hanburys."

We are at your service at all times and shall be glad to answer any inquiries.

EDWARD COOK & CO., Limited

Soapmakers by Appointment to H.M. the King,

BOW, E.3.

Delphinus

TOILET PREPARATIONS

Face Cream. Dental Cream.
Brilliantine (Solid & Liquid).
Pomade Hongroise. Nail Polish.
Shampoos. etc.

Products of Unvarying Excellence

Prepared by
The Delphinus Mfg. Co.
45 Edward Street, Brighton.
Cables & Wires: Hongroise, Brighton.

We do not incur heavy expenses in advertising to the public, but prefer to give our Clients the benefit of increased profits.

Sole Agents for Scotland:
Messrs. HENDRY & SMITH & Co.
83 Renfield Street, GLASGOW.

BE WISE! *Write us* **TO-DAY.**

Delphinus
TRADE MARK.

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"Newbery's"
FRANCIS NEWBERY & SONS LTD.

You will profit by stocking our Packed Goods, and your customers will obtain satisfaction.

Castor Oil	Brilliantines
Syrup of Figs	Hair Cream
Medicinal Paraffin	Dental Cream
Chemical Food	Smelling Salts

Bath Salts

All these lines attractively packed.

CHARTERHOUSE SQUARE, LONDON, E.C. 1.

SEAMLESS ENEMAS

(Complete in Box)
BRITISH MANUFACTURE.
ASSORTED COLOURS AND FINISH.

PRICES FROM **27/6** PER DOZEN

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Phone: AVENUE 5827.

G. B. KENT & SONS, LTD.

Are known the World over as the Largest Manufacturers of

BEST BRITISH BRUSHES

Please write for full Particulars to—

75 Farringdon Road, E.C. 1.

Established 1768.

The PIONEERS in Perfumery Products.

THE ETABLISSEMENTS ANTOINE CHIRIS

well-known all over the world, are now in LONDON, trading direct with the consumers.

Natural Flower Oils, Essential Oils Synthetic Chemicals, Sicily Oils,

Olive Oil, Vanilla Beans, Musk, Ambergris, Civet.

Imported Goods from India, Australia China, Japan, etc.

Inquiries solicited by their British Branch—

ANTOINE CHIRIS, LTD., 3 Drapers' Gardens Throgmorton Avenue, LONDON, E.C.2

Stock carried in England.

¶ The policy of the House of Chiris is to manufacture every product it offers. Where this is impossible, branches have been established in the various producing centres throughout the world to facilitate the collection of such products—thus enabling us to ensure to our customers that all goods sold under our label and seal are guaranteed pure and of the finest quality.

Ingram's MILKWEED CREAM

Has been CONSISTENTLY ADVERTISED in the best AMERICAN and CANADIAN PERIODICALS for twenty-five years.

A Medicinal Toilet Cream with a world-wide demand that is rapidly increasing. Two sizes

Prepaid Parcel Post to Great Britain and her Asiatic and African Colonies. Samples and store displays free with every order.

Ingram's Milkweed Cream
" Velveola Souveraine (Face Powder)
" Zodenta Paste for the Teeth
" Rouge, Light, Medium, Dark
" Perfume, 1 oz. assorted in fancy packages

100 Guest-Room Packages free.

Shipped via Parcel Post Prepaid.

Send us with your order the names of 100 of your lady customers, and we will mail each of them a handsome folder, inviting them to call at your store and get our Guest Room Package free, containing one each of the above in sample sizes, including Perfume.

If more convenient to you, specify shipments from our Canadian Plant.

FREDERICK F. INGRAM COMPANY (Established 1885).
411 Lafayette Boulevard, Detroit, U.S.A. Canadian Plant: Windsor, Ont.

Twenty-five years' continuous advertising has made this trade mark known wherever American and Canadian publications are read.

RESTUCCIA'S Pure Sicilian Oils.

LEMON
ORANGE
BERGAMOT

Finest quality with a world-wide reputation.

THE
CITRUS BRAND and MANUFACTORY
(G. A. RESTUCCIA, Manager)
MESSINA - - ITALY.
(Established 1860)

LONDON AGENTS:
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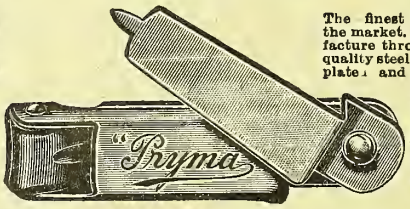
Support Home Industry

A GOOD SELLING PROPOSITION:
50% ON COST - 33⅓% ON SALES
BY SELLING
'Pryma' Nail Clippers
(BRITISH MANUFACTURE)



The finest Nail Clipper on the market. British manufacture throughout, of finest quality steel. Heavily nickel-plated and perfect finish. Delivery from stock, fastened 12 or 24 on card. Sells at sight, and gives satisfaction to Chemist and customer alike.

Trade Price - - **16/- doz.**
Write to-day for Sample Card.

To be obtained from all the leading Factors, or from the Proprietors,

WARMINGTON, TURNER & CO.
11 QUEEN VICTORIA STREET,
LONDON, E.C. 4.

Telegrams: "Oewarmitur, Cannon, London." Phone: Central 7851.

"CUTEX"

Manicure Preparations

Kindly note the following Reduction in Prices.

No.		Doz.		Each
1.	The "Ideal" Cuticle Remover, small -	18/–	Retail	2/–
2.	The "Ideal" Cuticle Remover, medium	36/–	,,	4/–
4.	Nail White - - - - - - -	18/–	,,	2/–
5.	Nail Polish Cake, white - - -	18/–	,,	2/–
6.	Nail Polish Cake, pink - - -	18/–	,,	2/–
7.	Nail Polish Cake, trial size - - -	5/6	,,	7½d.
8.	Nail Polish Powder - - - -	13/6	,,	1/6
9.	Nail Polishing Paste, pink - - -	18/–	,,	2/–
10.	Nail Polishing Paste, plain - - -	18/–	,,	2/–
11.	Liquid Nail Enamel - - - -	22/6	,,	2/6
13.	Cuticle Comfort - - - - -	18/–	,,	2/–
14.	Nail Bleach Powder - - - -	18/–	,,	2/–
15.	Nail Rouge - - - - - -	18/–	,,	2/–
16.	Compact Manicure Set - - -	27/–	,,	3/–
17.	Travelling Manicure Set - - -	84/–	,,	9/6
18.	Boudoir Manicure Set - - -	168/–	,,	19/–
31.	Cold Cream - - - - - -	18/–	,,	2/–
22.	Nail Polish Stick in Metal Tube -	13/6	,,	1/6

Henry C. Quelch & Co.

4-5 Ludgate Square, E.C. 4

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TRADE MARK

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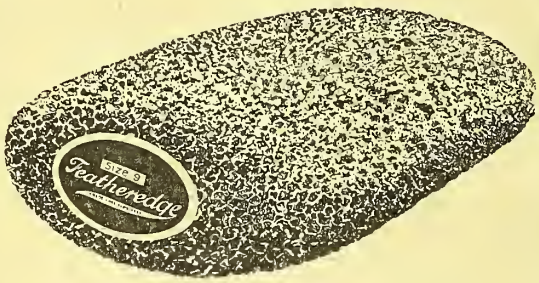

Are durable and do not harden. When used with soap, they make a delightful lather.

Obtainable of all Wholesale Druggists' Sundries Houses

MARKT & CO., LONDON, LTD.

American Merchants

SOLE IMPORTERS

98-100 CLERKENWELL ROAD, LONDON, E.C. 1.

DEARBORN

LIMITED

37 Gray's Inn Road, LONDON, W.C.

Toilet Specialities.

	Price per doz. to Retailer.	Selling Price P.A.T.A.
PILENTA SOAP - A complexion soap.	10/-	1/-
PROLACTUM - - For the lips.	10/-	1/-
PARSIDIUM JELLY For wrinkles	10/-	1/-
ALLACITE of ORANGE BLOSSOM A dressing cream	22/6	2/6
BORANIUM - - A hair tonic.	22/6	2/6
CLEMINITE - - For a face lotion.	22/6	2/6
COLLIANDUM - - For a face tint.	22/6	2/6
PERGOL - - - A deodorant.	22/6	2/6
STALLAX - - - For a shampoo.	22/6	2/6
JETTALINE - - For clearing the skin.	31/6	3/6
PHEMINOL - - A depilatory.	36/-	4/-
MENNALINE - - For the eyelashes.	36/-	4/-
MERCOLIZED WAX A face cream.	31/6	3/6
STYMOL - - - For oily complexions and blackheads	36/-	4/-
BARSYDE - - Dandruff eradicator.	22/6	2/6
TAMMALITE - - For grey or faded hair.	22/6	2/6
LIQUID PERGOL - To check excessive prespiration locally.	31/6	3/6
BICROLIUM - - For whitening the hands.	22/6	2/6
HARAPOSA - - Nut oil shampoo.	22/6	2/6

STOCKED BY ALL WHOLESALE HOUSES

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AUSTRALIA:
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KEMP & CO., Ltd. (Bombay)
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NEW ZEALAND:
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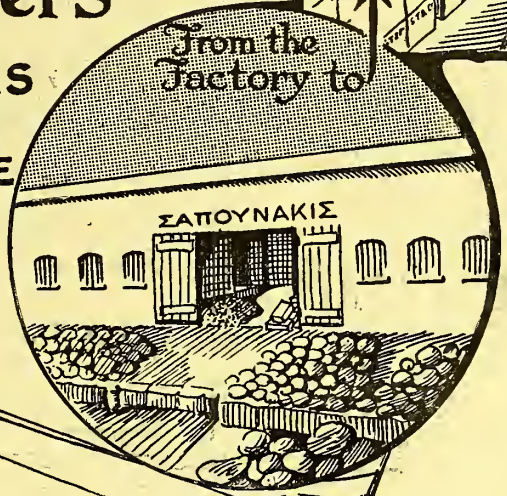
Buy Your SPONGES direct from the Importers

NO BROKERS AGENTS OR INTERMEDIATE CHARGES TO PAY



Being the actual Shippers of Sponges from the Mediterranean, we can offer you distinct advantages in variety and price.

Large and continuous shipments of fine Turkey and Honeycomb Sponges direct from our own fisheries, graded and packed in our warehouses.

We invite your inquiries.

SAPOUNAKIS, THOMAS & Co.
3, Milk St. Buildings,
- LONDON, E.C.2. -

ECONOMICAL PARCELLING

By Jum it sticks!!

"IRIS" GUMMED TAPE

Write for Samples & Prices.

R. A. STEPHENSON, LTD.,
130 Queen Victoria Street, London, E.C.4

FORD-SHAPLAND & CO. LTD.
LETTERPRESS
LITHOGRAPHIC
FINE ART AND
OFFSET
PRINTERS
ENGRAVERS
AND
BOOKBINDERS

LABELS, CARTONS, SHOWCARDS, SHAMPOO, CORN SILK ENVELOPES, & ALL CLASSES OF GENERAL WORK.
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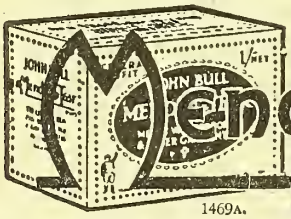
GREAT TURNSTILE, HIGH HOLBORN
LONDON, W.C.1
Telephone: 65 CITY.
Telegrams: FORSHAPCO WESTCENT LONDON



Mend-a-Tear

mends tears *better* than needle and thread, and does it more quickly. It is a thoroughly useful line to carry, and the profit is excellent. Send for particulars,
THE LEICESTER RUBBER CO. Ltd.
18 Granby Mills, LEICESTER.

1469A.

IS YOUR WINDOW DISPLAY BETTER THAN YOUR COMPETITOR'S ?

This is too important a question to be treated in a callous manner. To get the best out of your shop window you *need* at least one BETTERWAY Interchangeable Letter Sign on which your selling talk can always be presented attractively and in a dignified manner.

West-End Showroom - 77 New Oxford Street.

Illustrated Catalogue Free on Request.

EVENS, 4a Eagle Street, Kingsway, London, W.C. 2

GETS-IT
(The World-Famous Corn Remover)

"Gets-It" is a liquid which dries at once when applied to corns or calluses with the glass applicator that accompanies each bottle. Stops pain at once and soon loosens the corn or callus so that it can be lifted right off.

Used by Many Millions throughout the balance of the world, and certain of enthusiastic reception here.

Now Distributed in Great Britain through
THOMAS CHRISTY & CO.
4, 10 & 12 Old Swan Lane, Upper Thames St., London, E.C.
Manufactured by E. LAWRENCE & CO., Chicago, U.S.A.

Telegrams: "THERMORIGI BRIGHTON."

TRADE MARK: "THERMORIGI," REGISTERED.

Member of British Lamp-blown Scientific Glassware Manufacturers' Association, Ltd., and Glass Research Association.

E. S. ARRIGHI,
CHEMICAL AND EXPERIMENTAL GLASS BLOWER AND THERMOMETER MAKER,
39 & 40 BOND STREET, BRIGHTON.

Just what you want
IN
GLASSWARE
of every description.

YOU may perhaps be buying only for immediate requirements and cannot get prompt delivery of the goods wanted. Apart from our huge Provincial stock, bear in mind we have *ready for delivery* at our various London depots

APPROXIMATELY

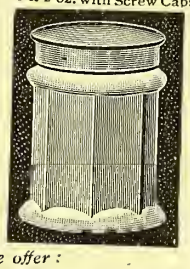
10,000 cases

of every description of Glassware for all purposes.

Porcelain Pomade (with Celluloid Caps) ½, 1, 2 and 4 oz.

Smelling Salts.

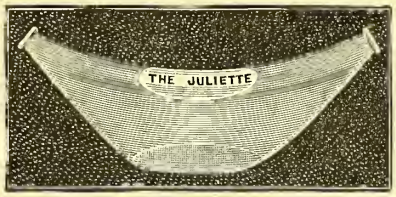
Opal Octagon Pomade. 1 & 2-oz. with Screw Caps



The following are some of the lines we offer:

LIMES, tinted green, squat, 2-oz., packed about 15 gross cases, **12/-** gross net.
Free port London. About 200 gross stock.
LIMES, tinted green, 4-oz., packed about 8 gross cases, **18/-** gross net.
Free port London and Newcastle-on-Tyne. About 500 gross stock
MEDICALS, tinted green, 4-oz., plain, 1st quality, packed 5 gross cases, **21/-** gross net.
Free port. Stock 650 gross Hull. 100 gross London. 100 gross Liverpool.
MEDICALS, 4-oz., graduated, packed 6 gross cases, 2nd quality, **19/-** gross net
Free port London. Stock about 200 gross.
MEDICALS, tinted green, 6 oz., 2nd quality, plain, packed, 6 gross cases, **22/-** gross net.
Free port London. Stock 60 gross.
MEDICALS, tinted green, 2nd quality, 8-oz., grad., packed 3½ gross cases, **24/-** gross net.
Free port Hull. 150 gross stock.
MEDICALS, tinted green, 1st quality, 8-oz., grad., packed 5 gross cases **30/-** gross net.
Free port London. 150 gross stock.
TOBINS, 2½-oz., tinted green, packed **5/6** gross cases, **20/-** gross net.
Free port, stock 200 gross Hull and 200 gross London.
VIALS, tinted green, ½-oz., packed about 28¾ gross cases **9/6** gross net.
Free port Glasgow, about 150 gross stock.
VIALS, tinted green, 1-oz., packed 17½-19½ gross cases, **11/-** gross net.
Free port Hull, Glasgow, Liverpool and Leith, about 700 gross stock in all.
VIALS, tinted green, 6 drams, packed 13/23 gross cases, **10/6** gross net.
Free port Leith, Hull, and Glasgow, about 1,000 gross stock in all.
VIALS, tinted green, 2-oz., packed 8/11 gross cases. **12/-** gross net.
Free port Leith, Hull, Glasgow and Liverpool. About 1,000 gross stock in all.
MEDICALS, 2-oz., tinted green, packed about 15 gross cases, **19/-** gross net.
Free port Leith. 9 cases stock.

WHOLESALE ONLY.



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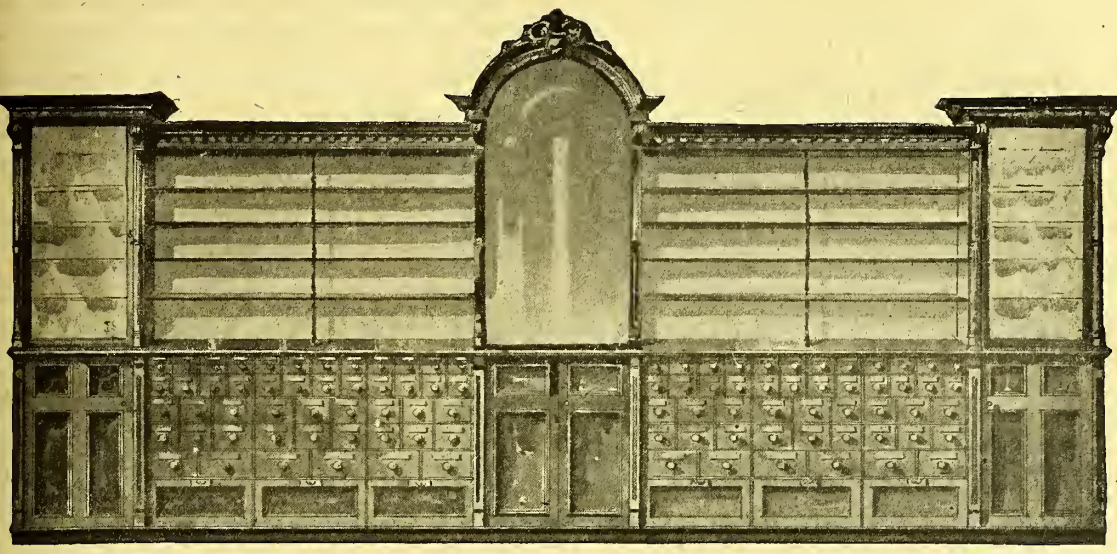

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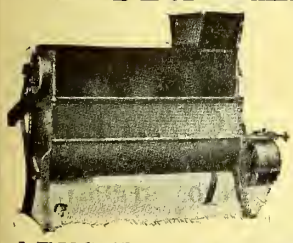

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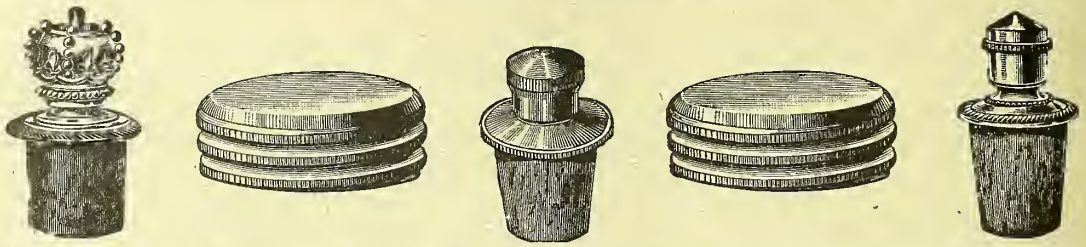

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ILLUSTRATION of a Combination Bottle Dryer specially designed for Manufacturing Chemists. Six to ten gross can be dried in the cupboard per hour, and at the same time large bottles can be dried on the tubes at the rate of two thousand a day of ten hours.

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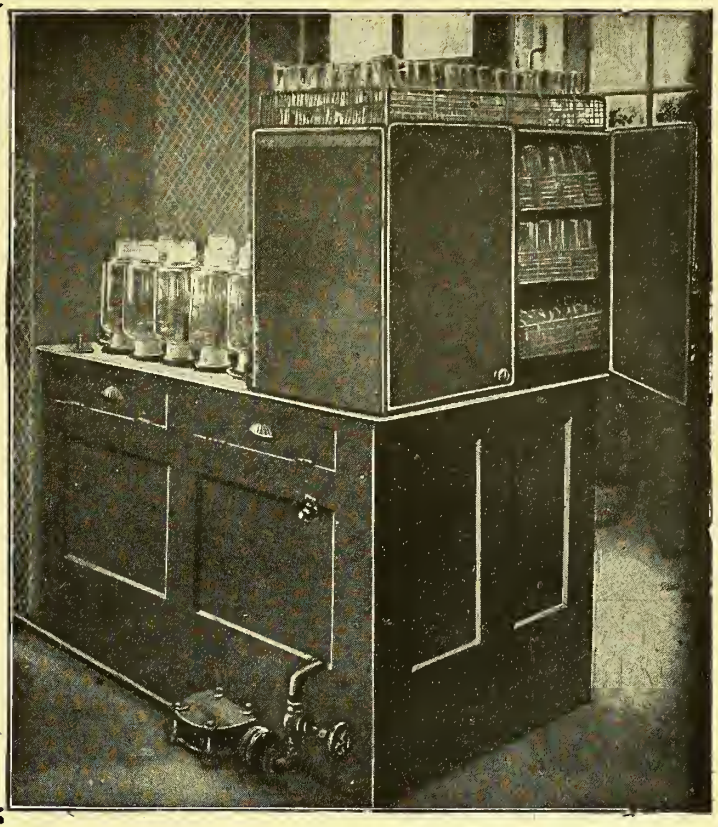

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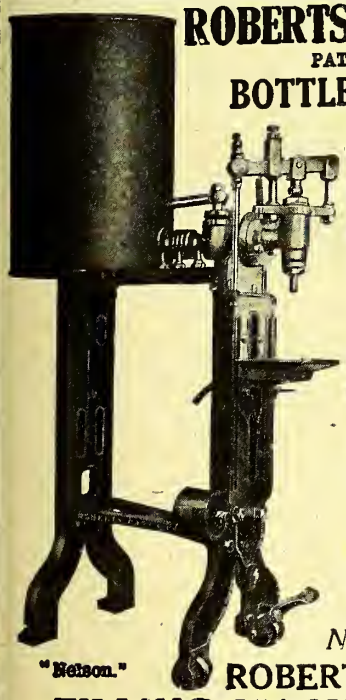

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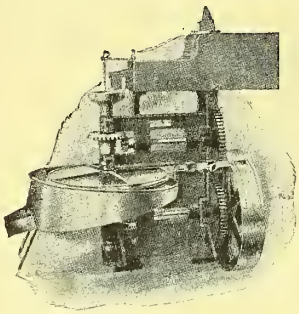

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August 21, 1920.

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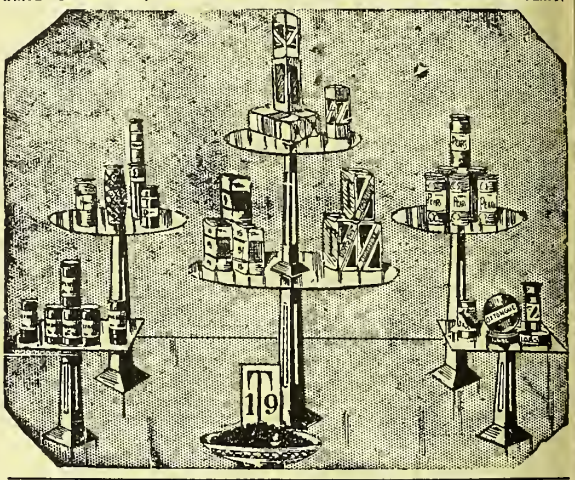

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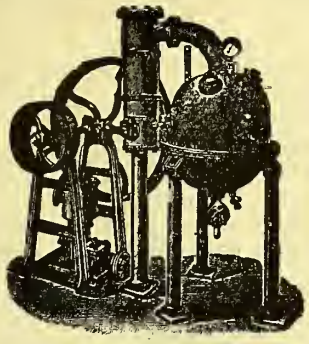

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3 bales approximately 4 cwt. each.

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for Walking Sticks, Shaving Brushes, Whips, Bamboo Fittings, etc.

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in any of the following metals : Brass Copper or Nickel Silver (nickel or silver plated) Aluminium and Jewellers' Metal (Tombac).

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Therefore :

It will pay you to Stock Armour's Laboratory Products.

Glycerine Extract of Red Bone Marrow.

4 oz. bottles	per doz.	24/-
8 oz. "	"	45/6
1 lb. "	"	87/6
Wr. Qts. (6 lb. net)	each	40/-

Glycerole Pepsin.

10% Solution of Armour's 3,000 Test Pepsin.

½ lb. bottles	each	4/-
1 lb. "	"	7/3
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8 oz. bottles	per doz.	36/-
16 oz. "	"	68/-
Wr. Qts. (6 lb. net)	each	32/-

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Rich in Albuminoid principles.

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Thyroids, Tablets U.S.P.

Standardised.

Supplied in bottles of 100, 500 or 1000.

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ALTERATIONS IN TRADE LIST PRICES

During JULY, 1920

The following list relates to the changes in prices which have occurred in respect to staple products or important alterations of prices of products in less frequent demand:—

NOTE.—The prices given below are current trade list prices to which 10% is to be added to arrive at the Minimum Selling Prices to the public.

	Trade List Price per dozen 25	100
TRADE MARK 'TABLOID' BRAND—		
Butyl-Chloral Hydrate and Gelsemine	—	123/0
,, Cannabis Indica Tincture, min. 5	—	30/0
,, ,, ,, ,, 0·1 gm.	—	30/0
,, Colchicine Salicylate, gr. 1/32	—	123/0
,, Digitalin, gr. 1/100	—	24/0
,, Ergotin, gr. 2, *s.c.*	—	123/0
,, ,, gr. 3, *s.c.*	—	182/0
,, Ergotin and Strychnine	—	193/0
,, 'Mamos,' gr. 5	—	48/0
,, Rhubarb and Soda, *pln.* and *s.c.*	10/0	30/0
,, ,, ,, ,, No. 2, *s.c.*	10/0	30/0
,, Salicin, gr. 5	36/0	126/0
,, ,, 0·25 gm.	30/0	105/0
,, Warburg Tincture, min. 30	—	36/0
,, ,, ,, 2 dr.	30/0	105/0

TRADE MARK 'TABLOID' BRAND HYPODERMIC—		
No. 43 Caffeine Sodio-Salicylate, gr. 1/2	per dozen tubes of 12	14/0
,, No. 329 ,, ,, ,, 0·1 gm.	,, ,, ,, ,, ,,	14/0
,, No. 328 ,, ,, ,, 0·05 gm.	,, ,, ,, ,, ,,	14/0
,, No. 303 ,, ,, ,, 0·03 gm.	,, ,, ,, ,, ,,	14/0
TRADE MARK 'TABLOID' BRAND VETERINARY HYPODERMIC—		
No. 201 Atropine Sulphate, gr. 1/2	per dozen tubes of 12	24/0
,, No. 208 Digitalin, gr. 1/4	,, ,, ,, ,, ,,	48/0
,, No. 213 { Morphine Sulphate, gr. 2; Atropine Sulphate, gr. 1/2 }	,, ,, ,, ,, ,,	54/0
TRADE MARK 'ENULE' BRAND—		
Cocaine Hydrochloride, gr. 1/2	per dozen boxes of 12	48/0
,, Meat, Children's and Adults'	,, ,, ,, ,, ,,	42/0
,, Quinine Bisulphate, gr. 5	,, ,, ,, ,, ,,	48/0
'TABLOID' BRAND PHOTO SULPHIDING COMPOUND	per dozen tubes of 12	16/0
'SOLOID' BRAND ZINC CHLORIDE, gr. 5	per dozen bottles of 25	16/0
MENTHOL COMPOUND PLASTERS, 7½ in. × 5 in.	per dozen	21/6

	1-oz.	2-oz.	16-oz.
TEREBENE ... per dozen	18/0	24/0	108/0

BURROUGHS WELLCOME & CO., LONDON.

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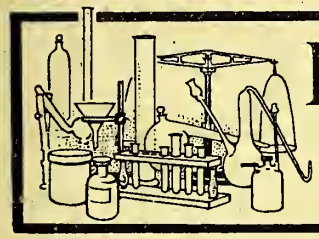

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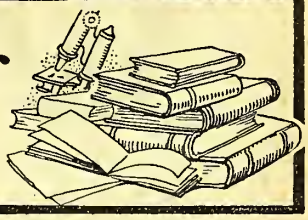

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Index to Volume XCII.

The index to Volume xcii. (which finished with the issue of June 26) is now ready, and has been sent to those who have already intimated that they desire copies. Any of our subscribers who require the index and have not sent us a postcard request for a copy should do so at once.

New Book.

Cow, Douglas, M.D. *Pharmacology.* 7¼ in. × 4¾ in. Pp. 132. 7*s.* 6*d.* J. & A. Churchill, 7 Great Marlborough Street, London, W. [This is the first volume of the "Students' Synopsis Series" of books which Messrs. Churchill have in hand. Dr. Cow states that the book is not intended to displace any of the recognised text-books, but to be used along with them. It is adapted for the final reading as a refresher of the student's memory before the examination. The book is arranged in paragraphs alphabetically, and deals not only with single drugs, but with classes of remedies and the action of drugs upon parts of the body.]

English and Welsh News.

The Editor would be obliged if subscribers would send him marked copies of newspapers containing items of interest for insertion in this or other news sections of the "C. & D."

Poisons and Pharmacy Act.

The following notice was published in the "London Gazette" on August 10:

Notice is hereby given that, after the expiration of forty days from the date hereof, it is proposed to submit to His Majesty in Council, in pursuance of section 2 (3) of the above-named Act, the draft of an Order in Council amending Regulation No. 14 of the Regulations as to the keeping, transporting, and selling of certain poisonous substances, made under the said section by Orders in Council dated respectively April 2, 1909, and November 10, 1911.

And notice is hereby further given that, in accordance with the provisions of the Rules Publication Act, 1893, copies of the proposed draft Order in Council can be obtained by any public body within forty days of the date of this notice, at the Privy Council Office, Whitehall.

This specimen of official ambiguity means that an Order is to be made to amend a previous Order, so that both liquid and solid agricultural and horticultural poisons are to be sent out in vessels "of sufficient strength to withstand rough usage" in transit. Previously this particular condition only applied to liquid preparations.

New Railway Rates.

The Railway Rates Advisory Committee on August 12 issued the second part of its report, in which it deals mainly with goods rates, the recommendations in regard to which have been accepted in their entirety by the Government, and directions have been issued by the companies to bring them into operation from September 1. The effect of the Committee's recommendations is to raise railway charges for the conveyance of goods by 100 per cent. over the pre-war rates, with various flat-rate additions on the lines which were adopted on the revision in January last; but the rise of 100 per cent. all round is an alteration in policy from that which was adopted at the last revision when different classes of traffic were dealt with by varying percentage increases. Merchandise in Class A traffic was then increased from 25 to 30 per cent., with a flat-rate addition not exceeding 2*s.* per ton. That flat-rate addition is now increased by a maximum addition of 4*s.* per ton, including the 100 per cent. flat rate. Merchandise in Class B, which was increased 40 per cent. in January, is raised to 100 per cent., *plus* 6*d.* per ton flat rate in lieu of 3*d.* per ton. Merchandise in Class C, which is increased 50 per cent., with a 6*d.* flat rate, is increased now to 100 per cent., *plus* 9*d.* per ton. Merchandise in Classes 1 to 5 (which includes drugs, medicines, and other druggists' goods), which was increased by 60 per cent. and a flat rate of 1*s.* in January, are now increased to 100 per cent., the flat rate remaining the same. Charges for collection and delivery, where included in the rate, have not been interfered with. For the carriage of "smalls" the new rates are to be increased by a further 150 per cent. as compared with 100 per cent. in January.

C C

Profiteering Act Regulations.

The "London Gazette," August 13, contains amendments of the Regulations as to the powers and procedure of the Central Committee. Regulation 19, which has been amended, is as follows:

19. If on the hearing of the complaint the Tribunal are satisfied that a profit has been made, or has been sought on the sale or offer for sale of an article, which is, in view of all the circumstances, unreasonable, the Tribunal shall declare the price which would yield a reasonable profit, and shall require the seller to repay to the complainant any amount paid by the complainant in excess of such price, and they may take legal proceedings against the seller before a Court of Summary Jurisdiction.

Provided that the profit sought or obtained shall not be deemed to be unreasonable.

(*a*) in the case of a seller who was in the same way of business before the war, if the percentage rate of profit sought or obtained does not exceed the percentage rate of profit obtained by him upon the sale of similar articles before the war, due consideration being given to the relative costs and charges of carrying on the business; and

(*b*) in the case of a seller who was not in the same way of business before the war, if the percentage rate of profit sought or obtained by him does not exceed the average percentage rate of profit obtained by sellers in that way of business under similar conditions on the sale of similar articles before the war, due consideration being given to the relative costs and charges of carrying on the business.

The above-mentioned proviso shall not apply in any case where the profit in respect of any transaction has been fixed by a scheme approved by the Board of Trade under Section 1 of the Profiteering (Amendment) Act, 1920, and further provided that where any scheme has been approved by the Board of Trade under Section 1 of the Profiteering (Amendment) Act, 1920, any profit sought or obtained on the sale of any article to which the scheme relates which does not exceed such profit as is allowed by the scheme shall not be deemed to be unreasonable.

London Chemists' Retail Price-list.

"The Script" publishes a number of mid-monthly alterations in prices, rendered necessary chiefly by the increase of from 2 to 10 per cent. made in the price-lists of wholesale druggists: Ac. acetyl. sal., 2*d*. drm.; ac. carbol. pur. liq., 5*d*. oz.; ac. citric., 10*d*. oz.; ac. sulphuric., 1*s*. 4*d*. lb.; ammon. chlor. coml., 2*s*. 3*d*. lb.; anthem. flor. Ang., 10*d*. oz.; aq. lavand. extra, Ang., 3*s*. 4*d*. oz.; cera alb., in placent., 7*d*. oz.; eau de Cologne, extra, 3*s*. 2*d*. oz.; ess. menth. pip., exot., 1 in 10, 6*d*. drm.; ess. pulegii, 1*s*. 3*d*. oz.; ess. zingib., 1*s*. 1*d*. oz. lin. pot. iod. c. sapon, 8*d*. oz.; lin. tereb. acet., 8*d*. oz.; mag. sulph. exsicc., 2*d*. oz.; menthol, 11*d*. drm.; pot. tart. acid., 1*s*. 8*d*. 4 oz.; ol. carbol., 6*d*. oz.; ol. lavand. ver. Ang., 5*s*. 6*d*. drm.; ol. limon. Palermo, 1*s*. 10*d*. oz.; ol. menth. pip. redest., 1*s*. 3*d*. drm.; quin. sulph., 1*s*. 6*d*. drm.; spt. vini meth., 2*s*. 8*d*. pint; tinct. quin., 2*s*. 11*d*. oz.; tinct. zingib., 11*d*. oz.; tinct. zingib. fort., 1*s*. 1*d*. oz.; ung. hydrarg. ammon., 7*d*. oz.; ung. methyl sal., B.P.C., 11*d*. oz.; ung. resinæ, 7*d*. oz.; zingib. Jam. pulv., 7*d*. oz.

Unauthorised Possession of Drugs.

At Thames Police Court, London, on August 14, John Love, charged on remand with being an unauthorised person in possession of cocaine, morphine, and other drugs (see *C. & D.*, August 14, p. 45), stated that he bought the cocaine from a man at the docks. Accused was bound over to come up for judgment if called upon.

At Malling Police Court, on August 14, Charles Slater was charged with being in possession of cocaine tablets. Defendant said that the cocaine was supplied to him for use in his business while he was in charge of a stud of racehorses in Spain. Captain Cookson, the defendant's employer, stated that the cocaine was injected into racehorses "to stave off jarring of the foot." Defendant, who also had had strychnine tablets in his possession, was fined 2*l*.

Birmingham.

The results of the first year's examinations of the local municipal Pharmacy School are considered satisfactory.

The appeal for funds for the local hospital on Alexandra Day realised 2,870*l*. Messrs. Holbrooke contributed 105*l*. and Alfred Bird & Sons, Ltd., 25*l*.

Mr. Walter Chance, of Chance Bros. & Co., Ltd., Smethwick, has been admitted to the freedom of the Worshipful Company of Spectaclemakers.

The exhibition of stainless or rustless steel at the Bingley Hall Show is of interest. The steel is likely to prove useful material for spatulas, pill-knives, etc., to say nothing of golf-club heads.

The London "Daily Telegraph" states that the circumstances connected with the disappearance of between 60,000*l*. and 70,000*l*. are being investigated by the Birmingham Criminal Investigation Department, and an active search is being made, particularly at the seaports, for a man named Keats, who is supposed to be endeavouring to get the money out of the country. He is stated to be the son of an Austrian, thirty-five years of age, and to be a qualified chemist.

Liverpool.

Mr. E. G. Hodges, chemist and druggist, is taking a holiday in South Wales.

Corn-cures and palliatives form prominent features in current window and counter displays.

The paper by Mr. W. H. Saunders on his world-tour (*C. & D.*, August 14, p. 65) has aroused much business and social interest.

Great interest is being taken in the Proprietary Medicines Bill, and, according to a correspondent, the stand of the *C. & D.* is appreciated.

Mr. Charles Hare, chemist and druggist, Southport, has organised two cricket matches, by which the Barnardo Homes and St. Dunstan's have benefited.

As one of the evidences of the growth of unemployment, there is a rapid increase in the number of men and girls applying to the wholesale houses for situations.

Some slackening of business is reported in the retail, and opportunity has been taken to complete the holidays of assistants. Proprietors, as a rule, can only afford broken holidays.

Mr. Harold Wyatt, Ph.C., Bootle, has been placed on the borough roll of Justices of the Peace by the Chancellor of the Duchy of Lancaster. He is the third local retail pharmacist to be thus honoured, the others being the late Horatio S. Alpass (in whose honour the Alpass Masonic Benevolent Fund was founded) and Mr. Henry Peet.

Manchester.

The "Manchester Guardian Commercial" states that a rumour is current that Boots, Ltd., are likely to undertake the retail sale of cigarettes, cigars, and pipe tobaccos in their stores over all the kingdom.

Portsmouth.

Southsea is full of visitors, and trade appears to be brisk.

Several local pharmacies have been altered and enlarged recently.

Local chemists and their lady friends, totalling about forty, had a char-à-banc excursion to Windsor on August 8. The weather was ideal, and, thanks to the efforts of the secretaries, Messrs. Coates and Rogers, it was a most enjoyable outing.

An Association member on active service at a Mediterranean station sent the following outburst along with his subscription: "To gain appreciation of our old Association of the Pharmacists of Portsmouth and around, I enclose a slip of paper from this land of sun and vapour."

Miscellaneous.

The Wellcome Historical Medical Museum will be closed for cleaning and decoration from September 1 to 30 inclusive.

Fire.—An outbreak occurred at the premises of A. Duckham & Co., Ltd., Phœnix Wharf, Millwall, London, E. 14, on August 12. The damage was slight.

Wine Licence Transferred.—At Spilsby, recently, Mr. F. R. Adams, chemist and druggist, Burgh-in-the-Marsh, was granted the transfer of a wine off-licence.

Wholesale Druggists' Cricket Championship.—Allenburys *v.* Burgoyne, Burbidges, played at East Ham on August 14, resulted in a win for Allenburys. The scores were 117 and 105 respectively.

Summer Outing.—The staff of the Barnet works of Pierson, Morrell & Co., Ltd., went for an outing to Windsor on August 14. The journey was made by motor, and, on arrival at Windsor, a visit was paid to the Castle. Lunch was provided at the Star and Garter Hotel, and afterwards a vote of thanks was accorded to the directors for arranging the outing. An enjoyable afternoon was afterwards spent in boating, etc.

Poisoning.—The following case of fatal poisoning has been reported: At Brixton, London, S.W., on August 18, an inquest was held on the body of David John Matthews, dispenser, lately carrying on business at a drug-store at Milkwood Road, Herne Hill. A medical witness stated that death was due to syncope from prussic-acid poisoning, and a verdict of "Suicide while of unsound mind" was returned.

In the Courts.—At Marlborough Street Police Court, London, on August 13, a man named Greenlees, charged on remand with attempting to commit suicide by taking veronal, was bound over.—At Stourbridge County Court, on August 12, Mr. A. J. West, chemist and druggist, Brettell Lane, sued a butcher named Moody for possession of premises. Mr. West offered alternative accommodation. Defendant stated that he had bought a private house, and was prepared to move into it as soon as he could get possession. Judgment was given for the defendant.—At Exeter, recently, a labourer named Chamberlain was bound over for twelve months on a charge of obtaining goods to the value of 12*s.* 6*d.* by false pretences from Mr. W. F. Pearce, chemist and druggist, South Street.

Scottish News.

Brevities.

Bailie William Dow, chemist and druggist, Kinross, has intimated his intention of retiring from the local Town Council, owing to failing health.

The old-established business carried on in High Street, Dunblane, by the late Mr. Charles Hunter, chemist and druggist, has been offered for sale as a going concern.

Hugh Cunningham, aged fifteen, an inmate of Baldovan Industrial School, has died in Dundee Infirmary as a result of inadvertently drinking a quantity of diluted lysol.

The Early Closing of Shops in Scotland Regulation, made under the Defence of the Realm Act, has been amended so that the Regulation shall not apply "to any fair lawfully held."

A correspondent writes: "Your excellent Editorial and 'Xrayser II.'s' observations on the Proprietary Medicines Bill (*C & D.*, August 14, pp. 61 and 62) deserve the highest praise. It is high time that a whip was issued convening a meeting of all proprietary owners and manufacturers to organise war upon this 'outrageous Bill.'"

Glasgow.

The Bowling section of the Glasgow Pharmacy Athletic Club held a pairs competition on August 3, with the following results:

Skips			Skips	Shots up
Geo. McDonald ...	22	*v.*	D. Black ...	7=15
W. Smith	22	*v.*	W. R. Craig ...	9=13
G. Thomson ...	18	*v.*	A. McEwan ...	7=11

The two highest-up pairs were presented with pipes given by Mr. Thomson, Byres Road, and were won by Messrs. George McDonald, J. T. Simpson, W. Smith, and John Dawson.

North-Western Federation of Pharmaceutical Associations meets at the Royal Institution, Colquitt Street, Liverpool, on August 25, at 3 p.m., to consider the scheme of the Amalgamated Society of Pharmacists, Drug and Chemical Workers, for stabilising wages and conditions of service.

Irish News.

Brevities.

Belfast wholesale drug houses are being boycotted in certain districts of Ireland in consequence of the political troubles.

The scarcity of medicines was discussed by the Castlederg Board of Guardians on August 13. The medical officer was sent for and explained that consignments of drugs had been held up on account of strikes, but they had since arrived.

Mr. A. H. Leahy, L.P.S.I., who has opened a pharmacy at Harden, New South Wales, became a pharmaceutical chemist in 1906 and in 1914 emigrated to Australia. He was for a time an assistant with Durno & Co., Ltd., Sydney, and then became manager for Hollis & Co. Mr. Leahy has now opened his own business at Harden, a township of 2,000 inhabitants.

French News.

(From the "C. & D." Paris Correspondent.)

Poulenc Frères propose to establish a factory at Pouzin, Ardèche, for the manufacture of pharmaceutical products.

Képhir, more properly termed "tiby," says M. Kayser, is an alcoholic beverage, not unlike cider in taste and smell. It is produced by adding a mixture of micro-organisms (yeast and streptococci in semi-solid gelatinous mass) to an aqueous solution, 50 or 60 grams of brown sugar being added for each litre. The yeast produces the alcohol, and the streptococci yield the lactic acid and a viscid substance. The alcoholic strength is 2 to 3 per cent.; acidity (total) in lactic acid attains a maximum of 7.3 gr. per litre in a 5 per cent. sugared solution. The microbic mixture is removed by filtration.

MM. Kling, Lassieur, and Vernerd have studied the chemicals used as substitutes for yeast in baking. The question of substitutes has also been especially studied in Germany, and some of those prepared and sold seem open to grave objections. The German Health Committees, the authors note, condemned bisulphate of potassium, potash alum, and sulphate of aluminium. Soda bicarbonate, calcium carbonate, and ammonium carbonate are the most popular bread-aerators, while monocalcium phosphate seems the most popular of the acid substances.

The Botany of the Battlefields.—"The Times," in a recent series of articles, commented on the extraordinary luxuriance of the poppies and charlocks which light up the "blasted heath." The writer could have noted that the presence of bulrushes and semi-aquatic plants on the hilltops is scarcely less remarkable, in the pools of water in the shell craters. The tall sorrel is with difficulty distinguishable from the rusted spirals which once supported the unending lines of barbed wire. It is a marvellous sight on an August day to look over miles and miles of undulating country, clothed in luxuriant vegetation, unbroken by house, fence, cultivated land, or even trees.

The Lumières of Lyons are best known in connection with the early days of the cinema, but M. Auguste Lumière's last paper at the Academy of Sciences was on vitamines. These, he says, are not indispensable to vegetable or to animal life. Fungi will grow on exclusively mineral soil, and if they flourish better where organic substance is added, it is not, he holds, because of the vitamines contained in these latter. The organic substances may be heated to 135° C. for an hour, or extracted by precipitation or filtration, the activity of nutrition nevertheless continues, and is sometimes even increased.

Among the awards made by the Academy of Sciences are 2,500fr. to M. François Maignon for his "Researches on the part played by fatty matters in the utilisation of albuminoids"; the "Bellion" Prize of 1,400fr. to MM. Maurice Courtois-Suffit and Réné Giroux for their study of "Cocaine"; a 750fr. "Monthyon" Prize to M. E. F.

Terroine for his "Contribution to the knowledge of the physiology of fatty substances and lipoids"; and the 900fr. "Philipeaux" Prize, gained by M. C. Dhéré for his researches as to hemocyanine. The annuity of 5,000fr. provided by the Charles Bouchard Fund is awarded to M. Charles Vaillant, whose work in radiography has caused him severe injuries.

The Work of Reconstruction.—Dr. Calmette has resigned his post as member of the Consultative Committee of Hygiene for the Liberated Regions as a protest against the indifference of the authorities to hygienic conditions in the reconstructed villages and towns of the devastated regions. Anyone who has visited the devastated regions will undertand Dr. Calmette's disappointment, but the cost of rebuilding a single village on up-to-date and hygienic principles would amount to a figure which an already heavily taxed nation might resent. It is doubtful if the "League of Nations," let alone France, could afford to rebuild these hundreds of villages in accordance with the hygienic standards of distinguished health authorities.

The "Thermogene" Trade-mark has been a fertile source of law cases. There were eight or ten cases in Paris, three at Lille, and one at Lyons. Lille and Lyons courts condemned those pharmacists who had used the term. The Seine (Paris) Tribunal continued to hold that Thermogene was a French adjective formed of two Greek words, and in consequence common property. In 1914 the case was carried up to the Court of Appeal. The war brought the moratorium, and for six years the opposing parties rested on the positions. Finally the Fourth Chamber of the Paris Court of Appeal has come round to the "French-adjective" theory and declined to convict the vendor of the "Dragon Thermogene Cotton-wool," holding that the second word is simply "qualificative" and indicates the "properties of the product."

M. Antonin Mallat, in his thesis for the degree of Doctor of Pharmacy, studies the question of Vichy salts and pastilles. The latter were originated by the eminent chemist Darcet. He was obliged to take magnesia lozenges almost daily "for his stomach's sake," and feared that urinary calculus might result. He therefore begged his friend Regnauld, the pharmacist, to make him carbonate-of-soda lozenges, which, in spite of their disagreeable taste, he used for two years. In 1828 he went to Vichy. This gave him the idea of substituting bicarbonate for the carbonate, and he gave Regnauld instructions accordingly. Regnauld began to sell the new article in January 1825. The recipe, very slightly modified, was inserted in the 1837 Codex as "Pastilles de Vichy ou de Darcet," and bicarbonate-of-soda pastilles thus became known by the name of "Vichy."

M. L. G. Toraude, pharmacist, Asnières, has recently published a new volume entitled the "Galeniennes." He is the author of "Historical, Anecdotal, and Critical History of the Cadets," the celebrated pharmacists of a hundred years ago, and also edited the "Histoires et Contes" of J. F. Demachy, another pharmaceutical celebrity of the eighteenth century, contributing as preface an amusing historical study of the author. Among his latest works are a biography of Zacharie Roussin and another of Parmentier. His study of pharmaceutical jurisprudence was interrupted by the war, but not before he had contributed his first article on "Poisons and the Law" to the "Temps." During the war he was instrumental in obtaining a decree in favour of pharmacists' widows and orphans, and did much "spade work" in furthering the claims of military pharmacists to official recognition.

M. Jeanselme pointed out to the Academy of Medicine that the 1916 law on the sale of poisons ("stupefying drugs") had had some unforeseen inconveniences. A client for whom a Dupuytren pill (0.01 centigramme of bichloride of mercury with 0.02 centigramme of opium extract) had been prescribed to be taken daily was obliged to get his prescription re-written every week. Opium and mercury pills, said M. Jeanselme, should be placed on Schedule A to avoid the necessity of re-writing prescriptions. Article 32, requiring the pharmacist to obtain name and address of purchaser, might also be dispensed with; and the present obligation to put "mercury" on the label requires modification, as "Hg" (or the number of the prescription) would suffice. The Academy appointed a committee of four (including M. Jeanselme and Professor Bourquelot, of the Faculty of Pharmacy) to consider the matter and report.

A Pharmaceutical Painting.—In one of the halls of the Paris Faculty of Pharmcy hangs an old painting dating from the early eighteenth-century period. The artist evidently intends it to represent the "Pharmacist's Progress." Bewigged figures advance along a corridor into a vast hall, the walls of which are lined with the drug-pots of olden days. Here we see the modest and shrinking candidate for pharmaceutical honours sitting at the examination table, questioned by three black-gowned professionals. On the right and left are counters where young fellows are serving clients. In the foreground the young pharmacist, in his shirt-sleeves, manipulates a heavy pestle with one hand, to the evident admiration of the laboratory porter. This curious contemporary record attracted the attention of the curator of the Historical Medical Museum, London, when on a visit to Paris recently, and a replica is stated to have been ordered for the London collection.

Paris Society of Pharmacy.—At the recent meeting the observations presented by the Seine Pharmacists' Association regarding piperazin and soda glycerophosphate were discussed at some length. The Association suggested that hydrated piperazin ($6H^2O$) should be official. The Society passed a resolution asking the Codex Committee to specify that "officinal piperazin is hydrate of piperazin." A second resolution recommended that crystallised soda glycerophosphate be inscribed in the Codex as the only official form. M. Guerbet read M. Fabre's paper on the dosage of mercury according to the amount in the urine of patients to whom this drug is prescribed. His system, he claims, gives results exact to half a milligramme per litre of liquid. M. Meillère spoke on the dosage of lithium in saline mixtures. M. Lantenois was elected a residential member, and arrangements made for the election of a second member at the next meeting.

Professor Armand Gautier, whose death was recently reported (*C. & D.*, July 31, p. 53), was born at Narbonne in 1837, and studied at Montpellier University. He was attracted to Paris by the fame of the chemist Wurtz, whose atomic theory was then making some stir in the scientific world. Wurtz appreciated Gautier's value, and made him his preparator. In 1884 the preparator succeeded his principal as Professor of Medical Chemistry, and in 1889 Gautier was elected a member of the Academy of Sciences in place of Chevreul. The discovery of ptomaines was his first remarkable work; leucomaines followed, then came studies on the part played by arsenic in normal organisms. This led him to the study of organic arsenical compounds, which in turn led up to arseniobenzol and "606." He studied lead-poisoning ("intoxication saturnine"), wrote a standard volume on alimentation, and did good work in exposing food adulteration.

The Ethics of Advertising.—A Parisian pharmacist advertised a number of proprietaries, including a cure for anæmia and another for tuberculosis. He was prosecuted for obtaining money by false pretences and for illegal practice of medicine. The latter allegation was dismissed, as the offence was committed at a date covered by a recent amnesty. The medical expert declared that the advertisement of the remedies for the two maladies above-named was an "escroquerie médicale," but the court declined to go so far. "Lying allegations" did not constitute the "fraudulent manœuvres" which the law punishes. Not even the publication of testimonials and letters of eulogy would constitute such fraud, unless it were legally proved by the prosecution that the writers were imaginary or the statements were false. It appears, however, that but for the amnesty he would have been convicted for having "diagnosed and indicated a medication" (privileges reserved to medical men), as he answered letters addressed to him by prospective clients as to their maladies—a dangerous practice for a pharmacist.

Cape Pharmacy Board.

ENERAL MEETING of the Colonial Pharmacy Board was l in the Board Room, Cape Town, recently, the report hich reached us by the last mail. There were present A. Walsh (chairman), Dr. C. F. K. Murray, Messrs. Parry, G. R. Cleghorn, G. Darroll, A. H. Matthew, the secretary. The President moved that before proding with the business of the meeting the Board should e on record and convey to Mr. Darroll a vote exsive of its deep sympathy and condolence with him he lamentable bereavement sustained by him through recent death of his wife. Mr. Cleghorn seconded and motion was unanimously assented to, all the members ding. A letter was read from Mr. Mager intimating on account of continued ill-health he found himself pelled to resign his membership of the Board. The sident moved that, in accepting Mr. Mager's resignawith regret, the Board place on record an expres of its appreciation of his long and faithful services member of the Board, Mr. Matthew seconded, and motion was carried *nem. con.* It was resolved to ise the Secretary for Public Health of the vacancy s created, to enable steps to be taken in terms of tion 9 of the Medical and Pharmacy Act. The annual ort of the Board for the year 1919 was read, and upon motion of Mr. Cleghorn, seconded by Mr. Parry, y adopted. A letter was read from the Transvaal rmacy Board upon the subject of a proposed Joint mining Board for the four provinces of the Union, enclosing a copy of the opinion of the Government advisers upon the legal aspect of the proposal. It resolved to reply asking whether the intention is t a specific examining body should be established such s contemplated in Section 25 of the Medical and Phar-y Act of 1891 of the Cape of Good Hope, quoting section for their information. An application for donation of a break of service due to military duties considered, and it was resolved to reply saying that he applicant will submit all documents in connection h his case, together with military certificates, the rd will be prepared to furnish him with a decision. application for exemption from passing a preliminary cational examination was considered, and it was reed to forward the applicant a copy of the regulations ing that the Board is unable under any circumstances o outside these regulations and his application cannot refore be entertained. An application for registration mitted by Mr. A. Hoffman was approved. A letter read from a registered chemist in reply to the Board's uiry in terms of a previous resolution, stating that his ition in a certain company is that of general manager. was resolved to submit the particulars of the whole stion to counsel for a legal opinion. Upon the motion Mr. Cleghorn, seconded by Mr. Parry, an application m the President for three months' leave of absence s approved, and Mr. Darroll was appointed to act as esident during this period. A letter from the Transl Pharmacy Board, enclosing copy of a resolution ing Government to proceed with the new Bill, was sidered. It was resolved that this Board should suppt the Transvaal Board, by communicating with the vernment urging that in view of the disabilities under ich the chemists and druggists are labouring owing to existing separate laws of the four provinces and the dequacy of such laws in certain respects, early steps uld be taken to proceed with the Union Medical, ntal, and Pharmacy Bill, which passed the third read of the Senate and the first reading of the Legislative sembly in the Parliamentary Session of 1917; a copy this resolution to be forwarded for the information of Transvaal Board. A letter was read from a prospe-e candidate submitting, in furtherance of his applicaa for examination, a sworn declaration by the son of ormer employer, now deceased, with whom he had comted three years' apprenticeship service. After conseration it was resolved to refer him to Section 23 the Medical and Pharmacy Act, 1891, and state that until he is able to comply with this enactment by furnishing a certificate of service under a duly registered chemist covering the four years "then last past," it is regretted that the Board has no power to accept him for examination. The reply of the Secretary for Public Health, with the copy of the Government law adviser's opinion on the subject of companies trading as chemists and druggists under cover of registered chemists and druggists, was considered, and it was resolved that in view of the legal position therein disclosed, it should be referred to in transmitting the earlier resolution passed at this meeting on the subject of the Union Bill, as a powerful argument for the necessity of early relief being afforded by fresh legislation.

Colonial and Foreign News

THE GERMAN GOVERNMENT has, in a recent decree, adopted the English expression "Key Industry" as a synonym for the usual designation of "undertaking of vital importance" (lebenswichtiger Betrieb).

BRITO-LATVIAN TRADE FAIR.—An exhibition will be opened at Riga during the last week in September, and will remain open for five weeks. Chemicals and fertilisers, oils and fats, are to be among the exhibits. Further particulars can be had from the British and Russian Transport Co., Ltd., 6 Lloyd's Avenue, London, E.C. 3.

A DUTCH RESEARCH INSTITUTE.—A Royal decree has been issued in Holland creating a Royal Institute for the purpose of carrying out pharmaco-therapeutical investigation either independently or at the request of the Minister of Labour. The institute is to become conversant with medicines which are not contained in the Pharmacopœia, and as far as possible with new ideas in pharmacy at home and abroad.

JAPANESE AND GERMANS FRATERNISE.—A social gathering took place at the Tokyo Station Hotel, Tokyo, recently, when several well-known Japanese pharmacologists and Germans interested in the drug trade were present, including the following German prisoners of war who were recently released by the Japanese Government: Dr. Karl Merck, of E. Merck, Darmstadt; Dr. Fritz Engelhorn, of Bohringer & Son, Mannheim; and Mr. Otto Reimers, of Yokohama, who has been acting as agent for these German firms. Among the Japanese present were Dr. Nagayoshi Nagai, Dr. Keizo Tamba, Dr. Tokichiro Niwa, Dr. Yoshizumi Tawara, Dr. Keizo Ikeguchi, Dr. Kotaro Nishizaki, Dr. Heizaburo Kondo, and Dr. Yasuhiko Asahina. After Mr. Tazawa, the promoter of the gathering, addressed the meeting, Dr. Merck, in reply, said:

Germany has been placed in a most unfortunate position and has lost the confidence of the world. This is due to the relationship with neighbouring countries, which regarded Germany as a natural enemy. The war has obscured the judgment of the world as to the real position of Japan as regards the war. The fact is that hostile feeling toward Germany and Germans among the Japanese was not very marked. Despite this fact, the newspapers of the Allied countries have been circulating reports as if an anti-German feeling in Japan was strong. Under such circumstances it is not surprising that the Germans at home and in other countries should have been unable to know the real state of affairs in Japan. I am unable to say to what extent the psychology of the Germans was affected by these misleading reports. I am, however, very glad to meet such influential Japanese publicists as those who assembled to-night, and should observe that the educated classes of Japanese have not been misled by the false reports so assiduously disseminated about Germany and Germans during the war. I have no doubt that the relationship between Japan and Germany will be restored to its former basis through the efforts of Japanese and German publicists. The restoration of friendly relations between the two countries should take the form of an interchange of interests in scientific, commercial, and industrial matters. When we get back home we shall not fail to do everything possible to remove the misunderstanding between Japan and Germany and restore their relations to the former state of friendship.

Legal Reports.

Mercury Ointment Case.—At Portsmouth, on August 17, Mr. William Gourd, chemist and druggist, Charlotte Street, Landport, was summoned under the Sale of Food and Drugs Acts for selling mercury ointment which was stated to be 62 per cent. deficient in mercury. Mr. F. P. Wheatley Down, who appeared for the defence (instructed by Neve, Beck, and Kirby), contended that it was the custom of the trade to supply diluted ointment where no medical certificate was produced. Mr. William Johnston (secretary of the Chemists' Defence Association) said that 10 per cent. to 16 per cent. of mercury was sufficiently strong to kill parasites, but not strong enough to produce symptoms of mercury poison. The standard in the Pharmacopœia before 1914 was far too strong for public use, and even in the revised edition the 30 per cent. standard was not to be trusted to the people. Mr. A. Addison (appearing for the prosecution) cited a High Court decision on that particular question. The Bench decided "to protect the public" by inflicting a fine of 5*l*.

Quinine Wine Case.—At Hull Police Court, on August 12, Mr. Edward Hindle, Ph.C., 218 Hessle Road, was summoned under the Sale of Food and Drugs Acts for selling a bottle of quinine wine deficient in quinine hydrochloride to the extent of 17 per cent., deficient in alcohol to the extent of 62.3 per cent., and containing salicylic acid to an extent equivalent to 3.5 gr. per pint. Mr. H. Hopkins, prosecuting for the Hull Corporation, said that, according to the British Pharmacopœia, quinine wine should have in it at least 9.5 per cent. of alcohol by weight, and should be entirely free from salicylic acid. Defendant had given notice, under Section 25 of the Act of 1875, that he was going to plead a warranty, but he (Mr. Hopkins) denied that the notice disclosed a written warranty given at the time of the purchase. Mr. Hindle, giving evidence, said that he purchased the quinine wine from Hirst, Brooke & Hirst, Ltd., Leeds, and he had no reason to believe that it was other than that described on the label. An analysis which he had had made confirmed the analysis of the city analyst. He purchased a dozen bottles for 28*s*., and when ordering it from the traveller he stipulated that it was to be "B.P." Mr. H. Wray, who defended (instructed on behalf of the Chemists' Defence Association, Ltd.), submitted that although a person might sell an article not of the nature and substance demanded, if he could show that he bought it and sold it, believing it was what it was represented to be, there was no blame attaching to him. In this instance, they claimed that the label attached, which specifically stated "Made in accordance with the British Pharmacopœia," constituted their protection. They had received an explanation of the matter from the manufacturers, who would have asked to be made parties in the case if they could have done so. Mr. Hopkins, in reply, said that there was no evidence that at the time Mr. Hindle purchased this wine a written warranty was given. As to the statement on the bottle being a warranty, he contended that it did not fulfil the strict letter of the law. The magistrates, after a private deliberation, dismissed the summons.

Police-court Fees.—The Home Secretary has recently issued an order to the effect that the fees for medical witnesses are to be advanced from 10*s*. 6*d*. to 15*s*., with an addition of 3*s*. 6*d*. a mile up to 30*s*., when the witness has to travel beyond two miles from his residence. The fee for veterinary surgeons, who give evidence as to the condition of animals stopped by the police, has also been advanced to 15*s*.

Since the dismemberment of Austria the consumption of the mineral waters from the famous springs of Carlsbad, Marienbad, Franzensbad, Teplitz, etc., has declined to such a great extent that there are at present in Czecho-Slovakia about fifty million empty mineral-water bottles for which there is no use. The Bohemian glassworks, which made a speciality of manufacturing this kind of bottle, have had to close down.

New Companies and Company News.

P.C. means Private Company and R.O. Registered Office.

Carbonex, Ltd. (P.C.).—Capital, 2,500*l*. Objects: carry on the business of engineers, chemists, patente etc. R.O.: Broad Street House, New Broad Stre London, E.C.

Grove Chemical Co., Ltd. (P.C.).—Capital, 10 Objects: To carry on the business of glue, gelatine a fertiliser manufacturers, manufacturing chemists, e R.O.: Imperial House, Kingsway, London, W.C.

George Parr, Ltd. (P.C.).—Capital, 3,000*l*. O jects: To take over the businesses carried on by G. Parr at 206 Stanley Road, Bootle, (1) of a plumber, a (2) of a soap manufacturer, under the style of "Par Liquid Disinfectant Co." R.O.: 206 Stanley Roa Bootle, Liverpool.

Bush, Beach & Gent, Ltd. (P.C.).—Capital, 10,00 Objects: To adopt an agreement with a company of sir lar name, incorporated in New York, and to acquire t business of chemical and dye merchants formerly carri on by the said American company's London agency 10 Union Court, E.C.

Cornwall Arsenic Co., Ltd. (P.C.).—Capital, 10,00 Objects: To take over the business of arsenic refiners a manufacturers carried on at Biscoe, Cornwall, by George J. Smith, G. H. I. Bickford, W. R. Miche T. F. Michell, F. D. Bain, S. H. Lanyon, and J. Cork, as the "Cornwall Arsenic Co."

Bow Bridge Dyes and Chemical Works, Ltd.—Ca tal, 100*l*. Objects: To carry on the business of chemis druggists, drysalters, oil and colour men, dealers in dru dyewares, etc. The first directors are: A. E. V. Sad 46 Gresham Street, E.C.; A. S. Poynton, 12 Wyndha Court, Portland Place, W. R.O.: 46 Gresham Stre London, E.C.

Boyd & Dower, Ltd. (P.C.).—Capital, 1,000*l*. O jects: To take over the business of a shipping, pharm ceutical, analytical, manufacturing and consulti chemist, druggist, drysalter, and oil and colour man, c ried on by J. H. Boyd, at 101 St. Mary's Road, Garsto Liverpool, as "Boyd & Dower." The first directors ar J. H. Boyd, 101 St. Mary's Road, Garston, Liverpo and T. Dower, 12 Boundary Lane, Liverpool. R.O 101 St. Mary's Road, Garston, Liverpool.

Charles Massey & Son, Ltd. (P.C.).—Capital, 10 Objects: To carry on the business of glue, gelatin, a fertiliser manufacturers and merchants, bone crushe and merchants, grease manufacturers, manufacturi chemists, etc. British Glues and Chemicals, Ltd., a the first managers and secretaries. R.O.: Imper House, Kingsway, London, W.C. Other companies reg tered in like manner are: J. & F. Walker, Ltd.; Meggit Ltd.; Quibbell Brothers, Ltd.; Weaver Refining C Ltd.; and Williamson & Corder, Ltd.

Boots Pure Drug Co., Ltd.—Sir Jesse Boot has signed his position of managing director in favour of M G. M. Gales, President of the American United Drug C

A. & F. Pears and Lever Bros., Ltd.—Lever Bro who in 1914 acquired 150,000 ordinary shares in A. & Pears, Ltd., in connection with the rearrangement of t capital of the latter company then effected, have made offer to purchase the preferred ordinary and preferen shares of A. & F. Pears. Holders of the former a offered seven 7 per cent. cumulative preference shares of each and eight 8 per cent. cumulative "A" preferen shares of 1*l*. each in Lever Bros., together with a ca payment in lieu of any fractional part of a 7 per cen cumulative preference share in Lever Bros. on the bas of 1*l*. for a completed share, for every eight of their share For each 10*l*. 6 per cent. preference share of Pears the are offered ten 7 per cent. cumulative preference shar in Lever Bros. The offer is recommended for acceptan by the directors of A. & F. Pears.

Westminster Wisdom.

By the "C. & D." Parliamentary Representative.

Dangerous Drugs Act.

This Act received the Royal assent on August 16.

Parliament Adjourns.

On August 16 Parliament adjourned until October 19, t the Speaker is to call the House of Commons together an earlier date should circumstances require him to take at step.

Proprietary Medicines Bill.

The report stage of this measure was not reached before rliament adjourned for the autumn. Notice had been en of amendments to be moved on the report by Lord ddell. One of these would remove diabetes from the edule of incurable diseases for the relief of which dicines may not be sold, and the other, relating to e prohibition of advertisements for scheduled diseases, a proviso to be inserted at the end of Clause 2 (1), Provided also that this sub-section shall not apply advertisements by a member of the Pharmaceutical iety in a newspaper or periodical published *bonâ fide* the use of the medical profession."

Malt for Home-brewed Beer.

Viscount Wolmer asked the Minister of Food, on gust 16, whether any impediment is placed by the nistry of Food on the sale of small quantities of malt cottagers for the brewing of their own beer; and ether, in view of the hardship caused by the difficulty w experienced by cottagers in obtaining their own pply of malt, he will take steps to facilitate the sale malt in small quantities to individuals.

Mr. McCurdy replied: There are no restrictions on the e or purchase of malt imposed by the Ministry of od, and the Ministry has received no complaint of any ficulties experienced by cottagers in obtaining supplies.

German Potash.

Sir Richard Cooper on August 16 asked the President the Board of Trade if he would state why 4,000 tons 80 per cent. muriate and 2,500 tons of 90 to 95 per cent. t of the German potash contracts were authorised by e Potash Distribution Committee to be exported from mburg to the United States in view of the demand for h material in this country.

Sir Robert Horne replied that the sales in question re authorised by the Potash Distribution Committee the ground that after careful investigation they were isfied that the available quantities of these particular ades of potash were in excess of the home demand, as idenced by the fact that purchasers for these particular antities could not be found.

Army Drugs.

Mr. Spoor asked the Secretary of State for India, on gust 11, whether his attention has been drawn to e circular-letter issued on September 15, 1919, by the vernment of India (Indian Munitions Board) to the rious local Governments and administrations in India cerning the drugs and surgical dressings required by e Forces in the field supplied to Government by a firm chemists in Bombay, and stating that the drugs were adulterated and the dressings so medicated, and otherse below the represented quality, as to imperil the lives soldiers; that this was done deliberately by the firm question to swell its own profits; that the name of firm had, therefore, been removed from the Governnt of India list of contractors, and recommending that should be removed from the lists of contractors to the ovincial Governments; whether, in communicating this formation to the public through the Press the name of firm in question was suppressed and is still being thheld, and why; whether he will communicate the me of this firm to the House and explain the reasons the Government of India for their failure to prosecute e directors or managing directors, or both; and whether will direct that such prosecutions shall take place.

Mr. Montagu replied that he had no information on the matter, but would inquire.

Double Sheep-dipping Order.

Captain Bowyer, on August 11, asked the Parliamentary Secretary to the Ministry of Agriculture whether he is aware that an Order was issued in July for Leicestershire and Northamptonshire that all sheep were to be dipped twice within fourteen days; that, as a result of this Order being carried out, over 100 sheep have died; who is responsible for this Order, and from whom damages should properly be claimed; and whether he will cause the whole question of these sheep-dipping Orders to be investigated so that at least sufficient notice shall be given to prevent future Orders overlapping, and to enable those affected to protest when necessary.

Sir A. Boscawen replied that the answer to the first part of the question is in the affirmative, except that the Order was issued on June 26. As regards the second part a certain number of losses attributed to double dipping have been reported to the Ministry, but full details are not yet available. The double-dipping Order imposed in Leicestershire and Northamptonshire, according to which sheep have to be dipped twice within a period of fourteen days in a dip approved by the Ministry, was one of a number of Orders applied to various parts of England, Scotland, and Wales, in pursuance of the Ministry's policy for the eradication of sheep scab. The reports which have reached the Ministry indicate that the losses in question have been due to the use of a poisonous dip for the second dipping. In this connection it was expected that the advice given by the Ministry on the subject of the use of sheep-dips, especially as regards the choice of a non-poisonous dip for the second dipping, would have prevented the losses in question.

B.P. Notes.

By "Abel Scholar."

Umbelliferone Test.

In the umbelliferone test under "ammoniacum," the quantity of material ordered to be used is much too large. If 0.1 gramme of a properly sampled specimen be taken with, at most, 5 c.c. of diluted hydrochloric acid (*partes æq.*), this quantity is ample to show the presence either of asafetida or African ammoniacum.

Concentrated Infusions.

When will the B.P. authorities take courage and introduce concentrated infusions (1 to 7), particularly of such favourites as inf. gent. co. Why not re-introduce the well-liked mist. gent. co. of former editions, stating that it may be used where inf. gent. conc. is ordered and make its strength and character agree with this favourite preparation of medical practitioners?

Lin. Terebinthinæ.

In the preparation of lin. terebinthinæ, 650 c.c. of rectified oil is required to the litre. Is this the chief ingredient, and are the others medicinally essential because a much larger quantity of oil may be added, still ensuring a perfect preparation, and there is the additional advantage that the liniment is more quickly absorbed and more efficient?

Spiritus Ammoniæ Aromaticus.

In making sp. ammon. aromat. by the cold, and non-distillation, process, after solution of the ammonium salt in the water and the volatile oils in the spirit, when the two are mixed, no matter which order of mixing is adopted, there appears a precipitate which, on vigorous shaking, increases, or appears to do so. But if one leaves the preparation for a little, muttering to oneself or even in the hearing of the bottle, "I don't care if it *never* dissolves," the precipitate will be found to have disappeared, and the solution to be nearly clear and ready for filtration if thought necessary. The writer, however, prefers subsidence and decantation.

The Conference Papers.

It passes my comprehension why, with all the young talent among us, we have to wait years to learn that what we have been using as *Triticum repens* is something else. What a blessing it is that public analysts are not, all of them, pharmacists, or we should have been caught long ago to our surprise, or perhaps to our dismay and cost.—The paper on defatted strophanthus seeds reminds me of a desire that was expressed some years ago for defatted seeds of this drug, nux vomica, and others to be put on the market for the use of pharmacists who prefer to prepare their own liquid preparations.—Could not the extraction of strophanthin from the defatted seeds by weak alkali, such as sod. bicarb., or even lime water, be conveniently adopted?

Three Puzzling Carbonates.

In the B.P. 1898 lead and zinc carbonates were described as lead and zinc hydroxycarbonates respectively, while magnesium carbonate was called "this preparation." A formula was given for the preparation of the hydroxycarbonate, and the process was detailed. These three carbonates are a puzzle to the pharmaceutical student and the pouncing ground of the examiner, because of the difference in the proportion of the hydrate and carbonate parts of the molecule. Expressed thus, the variation is clearly seen :

	Z.	L.	M.
H_2O_2	2	1	1
CO_3	1	2	3

The present pharmacopœia does not give a process for zinc carbonate, and lead carbonate is omitted for some mysterious reason. The B.P. gives the same process for the preparation of magnesii carbonas, but does not venture on a chemical formula, and calls the preparation "a hydrated magnesium oxycarbonate." The present official description for zinci carbonas is "a hydrated zinc carbonate." Why these variations? Would it not be better to revert to the former designations and call these substances magnesium, lead and zinc hydrato-carbonates, which probaby they are? The zinc carbonate would be better stated thus : "May be obtained by the interaction of zinc sulphate and sodium carbonate, each in aqueous solution, collecting, washing and drying the resulting precipitate.

Syrup. Ferri Iodidi.

Should not the instructions under syrup. ferri iodidi, "when the reaction is completed add the glucose, heat on a water bath for five minutes, mix," come earlier, or, at any rate, should not the mixing be done several times during the process? The throat of the flask ought also to be plugged with cotton wool, because on exposure to air the liquid, at this stage, very quickly assumed a yellowish to brown hue on the surface. The efficiency of the glucose is due to the trace of SO_2 it contains. This has been found to be an excellent preservative from oxidation or other sort of decomposition. Curiously the preparation is made to weight. Why not to volume? Its specific gravity is 1.373, say 1.35, and divided into 1,000 grammes equals 740 cubic centimetres. Nobody would be killed if it were made up to a level 750 c.c. Mr. F. H. Alcock, some years ago, recommended modern *Ferrum redactum*, which would be much better than iron wire that is always rusted, or iron filings, which seem to be always greasy. Wrought-iron nails are almost a thing of the past unless we except "tin" tacks. Why not use 41.5 grammes of iodine? There is plenty of iron for this small change. These pettifogging differences are very annoying to an old man of sixty who has worked to every B.P. in existence except that of 1864. *Appendix.*—To bring c.c. per litre to minims per fluid ounce, halve the number of c.c. and call them minims :

$$\frac{100 \text{ c.c.} \times 17}{35.2} = \tfrac{1}{2} - \tfrac{1}{25},$$

i.e., 48 becomes 50. Syrup. ferri iodidi, made carefully, gives a specific gravity of 1.373. Students should note this, as the formula is somewhat mixed.

Insurance Act Dispensing.

A Record of matters concerning Chemists' interests in the National Health Insurance Acts.

Reports from Local Centres.

SCOTLAND.

Kirkcaldy.—At a recent meeting of the Insurance Committee a circular was submitted from the Board of Health to the effect that for the first quarter the cost per patient on the Drug Fund exceeded the rate of 2*s.* per annum allowed. The clerk stated that the fund available in the area for the next five months was 350*l.*

Malaria Clinics' Scripts.

The Ministry of Pensions has issued a notice that after August 31 the Pricing Bureau will not accept any prescription for the Ministry unless it is written upon forms from prescription books "M.P.M.S.D. 60," which are issued for use of controlled clinics only. The notice further states that the prescription-form may not be used for anything but drugs, nor may proprietary articles, dressings, and artificial appliances be ordered on these forms. Clinics which are not controlled by the Ministry of Pensions will make arrangements locally.

South-Eastern Pricing Bureau.

The report of the Joint Committee for pricing prescriptions dispensed in the South-Eastern Division has just been issued. The total number of scripts and prescriptions received for the year 1919 up to March 22, 1920, was 2,235,247 and 2,659,768 respectively, with a value of 92,190*l.* 3*s.* 5*d.* The following table shows the numbers for the three preceding years :

	Scripts	Prescriptions	Value
1916 ...	2,148,255	2,510,345	64,347*l.* 17*s.* 11*d.*
1917 ...	2,028,566	2,365,822	62,840*l.* 7*s.* 6*d.*
1918 ...	2,351,112	2,730,997	85,730*l.* 17*s.* 6*d.*

The Pharmaceutical Society checked 10 per cent. of the 1919 scripts from all the areas except Middlesex, the percentage of error being given as 0.053. Complete statistics for the year 1919, excluding prescriptions issued under Sanatorium Benefit, are given in the report as follows :

No. of Prescriptions	Ingred. Price	Dispensing Fee	Av. Ingred. Price	Av. Disp. Fee
2,633,879	49,005*l.* 14*s.* 10*d.*	41,425*l.* 0*s.* 11*d.*	4·47*d.*	3·77*d.*

Each month there was an average of fifty-five disallowances, in every case in respect of appliances not covered by the second schedule, the most frequently ordered being jaconet, gamgee tissue, and throat-brushes. No errors were found in the 12,685 chemists' accounts during the year.

Complaint against a Medical Practitioner.

The Minister of Health has had under consideration the Report of the Inquiry Committee appointed to consider the representations made by the London Insurance Committee under Part. VI. of the Medical Benefit Regulations, 1920, in regard to Dr. W. A. Bullen. The Inquiry Committee found that after it came to Dr. Bullen's notice that his patient had returned home from the infirmary, he did not visit this patient at any time up to the date of his death in January 1920, and, further, that during that period he gave certificates in the usual form, stating that he had examined the patient on the dates borne by the certificates. Dr. Addison, therefore, decided that a sum of 50*l.* must be withheld from the Exchequer grant payable to the Insurance Committee, and this sum will be recovered by the Committee from the practitioner.

Municipal Enterprise.—Dartford Borough Council has made arrangements with a local hospital to supply oxygen at any time when the pharmacies are closed.

Letters on the B.P. 1914.

Early in 1917 (*C. & D.*, LXXXIX., 118) we commenced the publication of a series of letters from "Dee" to "Gee" regarding some of the little-known features of the British Pharmacopœia, 1914. Shortly afterwards "alterations and amendments" were made in the work by the General Medical Council, which made it almost impossible to say what articles were or were not official; and it was necessary to suspend the publication of the letters. The Pharmacopœia having now been restored to its original condition the criticisms of our contributor are resumed.

III.

Concerning Punctuation.

Dear Gee,—It was "pin-pricks," you will remember, I drew attention to, and possibly you are not quite so sensitive as I am. At school we are taught that punctuation is the art of pointing written matter in such a manner, as may naturally lead to its proper meaning. Well, take any page of the B.P. and run your eye over it. In one a plethora of stops is found; in another, stops are conspicuous by their absence. True, in this journalistic age, scant attention is paid, as a rule, to such details, but in a book published "By Authority," one looks, at least, for consistency.

For instance, in the Bismuthi Carbonas monograph, page 68, the sentence "Yields when strongly heated from 89 to 91 per cent. of bismuth oxide," has no stops. They are not necessary. Nor do any appear in the corresponding sentence under Bismuth Salicylas, but Bismuthi Subnitras is generously treated. There we find "Yields (comma) when strongly heated (comma) from 79 to 82 per cent."

Again, compare the directions for preparing Decoctum Hæmatoxyli with those of Decoctum Sappan. The first has one comma, the second three. Yet the wording of the paragraphs are identical.

A non-botanical reader would have difficulty in understanding the sentence under Buchu Folia (page 71) "Transverse section exhibits in epidermis cells containing yellow sphero-crystals." The monograph in the B.P. 1898 read "The transverse section exhibits an epidermis whose cells contain yellow sphero-crystals." Much better put, I think. A comma in the former after "epidermis" would clarify the sentence.

Similar inconsistency is met in the "hyphening" of words. In the Calcium Hypophos (page 76) monograph "spontaneously-inflammable" are linked. In the Sodium Hypophosphis (page 346) the words are free. In Borax Purificatus (page 70) "a hot saturated solution" is ordered. Under Acetanilidum (page 2) and Caffeina (page 72) "a cold saturated solution." Surely, if anywhere, the hyphen is necessary here to prevent ambiguity.

More Ambiguities.

To its credit the 1914 is the first B.P. to recognise that "Myroxylon" is neuter, therefore the source of Tolu Balsam (page 62) now appears "Myroxylon toluiferum," not "toluifera," as formerly.

Ammonii Carbonas (page 40) "exposed to the air becomes covered with a white efflorescence which is only superficial." If this be inserted as a character of the salt it is not true. The 1898 B.P. put it better, "a white efflorescence which should be only superficial." The extent of efflorescence is solely a question of time; under prolonged exposure the salt becoming converted into brittle lumps of powder.

Anthemidis Flores (page 45) have "florets mostly ligulate and white, the 'ligula' possessing four veins." Is "ligula" ancient or modern, Latin or English, or merely the result of dropping the "te" in order to avoid trouble in the regularity of the printing? And is not "excentric" in the Calumba monograph (page 79) an eccentric way of spelling the word?

Antimonium Tartaratum (page 37) "yields the reactions . . . of tartrates. It does not, unless the antimony be first removed.

Aquæ.—Thirteen waters are official, and in no less than seven the monograph is followed by "See Appendix XII., page 529, Aquæ. Similar instructions to "See Appendix" occur in the plasters, extracts, suppositories, syrups, ointments, etc. Are such repetitions really necessary? Could not a note *re* appendix be given once and for all, as is printed under Aqua Anethi regarding the water to be used? In preparing this and other similar aqueous liquids by distillation, only good natural potable water must be employed, as directed for "Distilled Water." Continuous reiteration gets tiresome. Is there any object gained, for instance, by repeating the statement four times that ext. bellad. liq. contains 0.75 per cent. of alkaloids? Most "standardised" galenicals are similarly treated.

Arachis and Sesame Oils.—In the Appendix (page 529), is found, under Olive Oil, the statement: "In India, and in the Eastern, African, Australasian, and North American Divisions of the Empire, Arachis Oil or Sesame Oil, but no other oil or fat, may be employed in making the official Liniments, Plasters, Ointments, and Soaps for which Olive Oil is directed to be used." In the text, under Oleum Olivæ (page 272), we are ordered to "See note Oleum Arachis," page 259, and note "Oleum Sesami," page 275. The note under Oleum Arachis is practically a repetition of that appearing in the Appendix, with the exception that the expression "North American Divisions of the Empire" is omitted, while that under Oleum Sesami has "Australasian" omitted. What are the Canadians and Australasians to understand? Are the omissions intentional, or are they merely a proof that undue repetition leads to slipshod work?

Argenti Nitras (page 54) is said to be "slightly soluble in alcohol (90 per cent.)," which is to be expected, seeing that silver nitrate is "soluble in less than its own weight of water" and 90 per cent. alcohol contains about 15 per cent. of water, but silver nitrate is also "soluble in ether, and in glycerin." Will you, Gee, when you've time, see if this is so, but remember that the "Ether" of the 1914 B.P. is 0.720 ether, and that the preface reads, page xiv) "in stating the 'solution' reactions . . . the term 'solubility' is necessarily sometimes used in a general sense irrespective of more or less obvious concomitant chemical changes." The paragraph has not much bearing on the question, beyond giving you warning of obvious concomitant chemical changes during your experiments.

Caffeina (page 72) dissolved in water gives a white precipitate with solution of tannic acid, soluble in excess of the reagent. In my hands the precipitate proves no more soluble in excess of the reagent than in ordinary water.

Calcii Phosphas (page 78) as in the B.P. 1898 still remains without a chemical formula.

Camphora (page 81) we are told "forms a liquid when triturated with chloral hydrate, menthol, phenol, thymol and certain other substances." With equal truth, the statement could be repeated under each of the substances named. The liquefaction is not at all peculiar to camphor. Snow forms a liquid when triturated with common salt. Also, the statement as it appears is loose. The proportions are an important factor in the reaction. Try to liquefy 100 parts of camphor by triturating with 10 parts of chloral, and note the time that elapses before your efforts are crowned with success.

Carbo Ligni.—The monograph (page 84) reads "Wood charcoal is wood charred by exposure to a red heat without access of air." In the B.P. 1898 it read "the carbonaceous residue of wood charred," etc. Can the B.P. 1914 definition be said to be an improvement? Wood charcoal is certainly not wood. It was wood. Wood charcoal is impure carbon obtained by exposing wood to a red heat without access of air.

Cassiæ Fructus.—An aqueous extract of Cassiæ Fructus now appears as Cassiæ Pulpa. This extract may be pulpy, but is it "pulpa"? There seems to be no more need for its introduction than for corresponding preparations of figs, tamarinds, prunes. All are merely ingredients of Confectio Sennæ, where directions are given to boil the figs and prunes in water for four hours; add the tamarinds and cassia pulp, digest, and, finally, rub through a hair-sieve. Where is the need, then, of this new bad-keeping galenical, seeing that "pulping" of the fruits is done in

the preparation of the confection? Compounders will probably find some other way of ensuring a smooth product than by means of the expensive easily-ruined hair-sieve. Ever since the coming of the B.P. 1914 I have been in terror of getting a National Health Insurance prescription for Cucurbita Semina Præparata. Seeing that the seeds are not to be more than a month old the tip in Squire's "Companion" does not help me much. "As the ripe fruit keeps a considerable time, the directions would have been more intelligible if they had read "not more than one month after removal from the fruit." Although this would necessitate keeping a fruit which is often of large size (up to 2 cwt.) on the premises.

Yours,
D. Dee.

Apothecaries' Assistant's Examination Experience.

At the present moment I am glorying in the summer sunshine, writes *D. P.* (30/60), but memories of a week ago recall very different feelings. The occasion was the Apothecaries' Hall examination for assistants. To begin with, while having lunch on that eventful day, it suddenly occurred to me that I had forgotten everything about alcohol! I had left all my books at home, so there was nothing to do but "wait and see." I began to wonder if my memory would fail me in other things too, so ceased to think of the subject until I found myself inside the historic buildings in Water Lane. I was directed to a dressing-room, and there met other candidates all very busy preparing for the ordeal. It so happened that I was able to borrow a chemistry book and refresh my memory on that important subject alcohol. Then I donned a white overall and proceeded to fill the pockets with numerous etceteras, including sealing-wax, litmus-paper, muslin, and scissors. Thus arrayed I went downstairs, signed my name in a book, and was told to wait in a large room with the other candidates. This room was historic in every way: huge portraits adorned the walls, at one end was a fiddlers' gallery, and the ceiling was most beautifully painted; but by this time I was feeling much too scared to appreciate my surroundings. The dreadful, nervous apprehension of the coming ordeal was slowly but surely making itself apparent. I knew also I was not the only one so afflicted.

After waiting a few minutes my name was called, and I was directed to a certain table in another big room for materia medica. I produced my admission-card by request, and at the same moment a bottle of nux vomica seeds was shown me. Then followed ipecacuanha, strophanthus-seeds, carbolic acid, and unguentum hydrarg. co. to recognise. I smelt the last-named to detect the camphor. Then I was asked what is camphor; also terebene, creosote, and salicylic acid. Where does atropine come from? Constituents of mist. ferri co., pulv. ipecac. co., pil. saponis co., pulv. rhei co.; the percentage of morphine in opium, of opium in pil. saponis co., of opium and ipecacuanha in Dover's powder, of morphine in tinct. opii; doses of about two dozen preparations in rapid succession, and that was all.

I returned to the other room and awaited the call for chemistry. It was not long in coming. By this time I had quite calmed down. My first examiner had set me at my ease, and I approached the next a little less awe-stricken. Had I made any salts? How is calomel made? What is sublimation? What other things sublime? What happens when iodine is heated? How is sulphur præcip. made? What impurity does it contain, and how detect it? What is the distinction by test between potassium chlorate and potassium chloride? What other salts give a white precipitate with silver nitrate? What is there peculiar about the precipitate with silver nitrate and potassium cyanide? Another test for cyanides? To what other salts does the formation of Prussian blue apply? What reagent is used to produce Prussian blue in the distinction between ferrous and ferric salts? What is the intermediate reaction in the production of Prussian blue by a ferric salt? How detect red lead in red mercuric oxide? What happens when a cyanide is heated with an acid? All these questions only occupied the space of a few minutes, and I was dismissed for a second time.

Then, after another interval, a dozen candidates were called for the practical work. I was one of the twelve, and we were conducted to the practical room. The worst ordeal was about to begin. No one was happy at that moment, I am sure. On entering the room we were given instructions that the time allowed was three-quarters of an hour, and the prescriptions were to be dispensed as if for a patient. If all the dispensing in the world had to be done under the same conditions and at the same rate of time, I should be sorry indeed for the patients. I went to my allotted bench and read the two prescriptions. There were then in front of me three measure-glasses, a balance, some sheets of foolscap, and pen and ink. So I started off, as did everyone else, to collect my apparatus. Oh, the hurry and bustle of those first few moments! Everyone was tearing round the room at top speed, all intent upon getting hold of the necessary things. So far as I can remember my prescriptions were as follows:

Sodii arsenat.... ... ... gr. ¼
Ferri sulph. ... ... gr. ij.
M. ft. pil. Mitte xij. 1 t.d.s. p.c.

Sodii chlor. ... ... gr. x.
Zinci chlor. ... ... gr. xij.
Aq. laurocerasi ad ... ... ℥ vj.
Ft. lotio pro oculis.

The solution is required to be clear, and must be filtered.

I secured my drugs and a pill-machine, then went off to find a mortar. The only suitable pestle had the handle loose, but there was nothing else to do but make the best of it. After cleaning it, for it was covered with a sticky substance, I made all haste to finish the pills. When in the middle of massing, my elusive pestle persisted in falling away from its handle, and it was a work of art alone to keep it on. The only pill-box labels had about a quarter of an inch of available space for directions. This was hopeless. It was quite impossible to put the necessary words in that small space. My handwriting is never very big, but my powers of caligraphy were baffled here. So I did the next best thing and wrote on the lid. This is not pharmaceutical etiquette, but in the circumstances I could see no other way out of the difficulty. The pills finished and wrapped up, I started off again in quest of the other bottles needed for the eye-lotion. The salts were just in solution without being filtered, when time was up! It had seemed more like one quarter of an hour rather than three-quarters. It was quite a relief to be told to take our seats in the middle of the room. When my turn came I went to an examiner, who asked me how I made the pills and what ferri sulph. was used. I pointed out the overdose of sodium arsenate and the precipitation which would occur in the lotion. Then I was transferred to another examiner, who astonished me by opening his questions with, How many people did I think my pills would kill? At other times I should have laughed, but my thoughts were occupied in hastily wondering what other funny questions were coming. However, he only asked me about the oleo-resins and gum-resins, some of the animal preparations of the B.P., and the preparations of arsenic. That was the end, and I left the room with a feeling of great relief. My general opinion of the practical examination is simply a time of frantic rush, avoiding collisions with other people, and concentrating one's whole attention in getting something done to show the examiners. There is no time to study the art of dispensing, and I strongly advise all intending candidates to get their teachers to give them periodical tests with unusual prescriptions to be done in three-quarters of an hour, including the time for preparing apparatus. Only in this way can students realise what it means to work quickly.

The examiners were all that could be desired, and I certainly felt that the afternoon's experience was not altogether unpleasant. From the hour that I was dismissed I banished all thoughts of pharmacy for the time being, and my books were set aside until the result was out.

The Factory First-Aid Association (hon. secretary, Mr. A. C. McLaren, 69 Chestnut Avenue, Walthamstow, E. 17) is prepared to give advice regarding the surgical dressings required for factories to meet the requirements of the Home Office Welfare and First-Aid Orders.

Bayer's Strike Over.—After a three-days' lock-out, work has been resumed at Bayer's Leverkusen factory. The men struck work partly on account of the 10 per cent. Government tax on their wages (*C. & D.*, August 14, p. 66), which they declared should be paid by the company. Black Michael has now seen the error of his ways and has come round to the employers' point of view that the tax cannot be made a subject of negotiation. He has promised to be punctual and work to his full capacity, but whether his stomach is full is another matter.

Examination Experiences.

The Qualifying Examination in Pharmacy.

A candidate who passed the examination in London recently contributes the following account of it :

I arrived at "The Square" about forty minutes too soon, a very common occurrence with candidates, judging by the number already there. This time was occupied chiefly in the mutual discussion of our difficulties. Presently a stentorian-toned voice bade us adjourn to the Histological Laboratory, where we took our places on what are popularly called the "Funking Forms." Things were made as comfortable as possible here, the candidates being supplied with illustrated papers, but I had read my "Daily Mirror" from page to page several times over before I was sent to the first subject.

Chemistry and Physics.—What is Victor Meyer's experiment, and how to get equivalents? Then questions on metals, oxides, and salts. Particular stress was laid on stannous and stannic compounds. What is an amide? Action of heat on NH_4NO_3. Action of heat on CH_3COONH_4? What is acetyl chloride? How is it used commercially? A few questions on acetic acid and phosgene completed the first section.

Botany.—A description of a rosaceous flower and recognition of specimens of broom and juniper were required. Next followed two slides, one of a monocot. root and the other of a germinating bean. Questions were asked on the orders *Leguminosæ*, *Ranunculaceæ*, various kinds of fruits, tissues, photosynthesis, food storage, and diffusion. The examination finished with a discussion on enzyme action.

Practical Chemistry.—This consisted of an estimation of potassium bromide and the detection of a given powder. Lithium oxalate and ammonium sulphate were found.

Poison Law.—Enumerate the regulations for Parts I. and II. of the Poisons Schedule. Questions were asked on cocaine procedure. The examiner recited a number of names of poisons, and inquired the part of the Schedule to which they belonged.

Materia Medica.—I was shown specimens of gum acacia, sandarac, cinnamon, tonquin, physostigmine, pale and black catechu, Indian gum, and cassia-bark. The questions included the botanical names, constituents, and natural orders.

Pharmacy.—Translation of four or five prescriptions. A number of doses and strengths. Questions on three or four B.P. preparations, some dispensing problems. Apparatus, the explanation of technical terms, and recognition of a few specimens of B.P. preparations.

Dispensing.—The paper included pot. permang. pills, an olive-oil emulsion, a straightforward mouth-wash, and 20 grams of mercuric oleate.

A short time afterwards I found myself in the Council Chamber being congratulated by the Registrar on climbing what he hoped would be only the first rung in the ladder of pharmaceutical success.

Galenicus. (17/6.)

The following are the experiences of a candidate who was successful at the recent examination held in Edinburgh :

Having signed the register at York Place, and the other preliminaries being over, I joined the "Band of Hope" and marched to the slaughter.

Practical Chemistry.—I found the mixture for analysis lying on the bench along with a notebook for my report. Acting on the advice of "old soldiers" who had been through the ordeal, I observed the arrangement of the bench reagents, etc., took out the necessary apparatus from the cupboard, and proceeded. The salt proved to be mercuric chloride and zinc acetate. I then tackled the volumetric, which was a solution of sodium bromide, and so presented no difficulties.

Chemistry and Physics.—The examiner first asked for the formula for ethyl alcohol. Then, How can it be made from malt sugar? What enzymes take part in this reaction? What is the action of invertase and zymase? From alcohol how is chloral prepared? What is the formula for chloral alcoholate? How is it prepared? What is the action of KOH on chloral? Name the intermediate products in the manufacture of chloroform from alcohol. How many oxides of nitrogen? How is nitrous oxide prepared? What is formed when ammonium nitrite is heated? How is nitric acid prepared? How is nitrogen obtained from the atmosphere? How many oxides of sulphur? How are they prepared? How is benzene sulphonic acid prepared? Formula for benzene sulphonic acid? How is phenol prepared from benzene sulphonic acid? Shown Twaddell's hydrometer—What is it? How would you take specific gravity with it? What is Boyle's Law? What is Charles' Law? Throughout the examiner was quite the reverse of the untamed lion some would have us believe that he is.

Botany.—I was shown a transverse section of a flower-bud, which on examination under the microscope proved to be *Cruciferæ*. I sketched the parts, named them, and proceeded to draw a diagram of the section of an apple. The examiner then asked me what I had seen in the microscopic slide and to describe parts of the flower-bud. What is the function of the anthers? How is the flower pollinated? How did I know that *Cruciferæ* was insect pollinated? The sketch of the apple was satisfactory. Is the apple a superior or inferior fruit? What is that? —The thalamus. Shown a banana. What kind of fruit is it? Where are the seeds? How is the plant reproduced? What common plants do farmers cultivate vegetatively? The potato. Is it a stem, a root, or what? How do I know it is a stem structure? I was next shown for recognition specimens of broom, digitalis, Taxus baccata, cherry-laurel, fennel, and an unofficial specimen which I did not recognise. Then I was asked the function of the leaf. What is the difference between water taken in at the root and that given off by the leaf?

Dispensing.—The paper set was not difficult :

1. Hydrarg. subchlor. ... ... gr. $\frac{1}{6}$
   Sacch. lact. ... ... gr. ij.
   Ft. pulv. mitte tales viij.

2. Make six suppositories of tannic acid $\frac{1}{2}$ B.P. strength.

3. Make 1/5th B.P. quantity inf. calumbæ.

4. Acid. arsenios. ... ... gr. 1/30th
   Ext. nuc. vom. ... ... gr. $\frac{1}{4}$
   Quininæ sulph. ... ... gr. ij.
   Ft. pil. mitte tales xij. Varnish.
   Sig. : 1 ev. 4 hrs.

5. Make a solution of hydrarg. perchlor. in glycerin 1 in 2,000, send ʒj. Sig. : The throat paint.

Pharmacy.—This was the first subject in the afternoon. I was given a prescription to translate from English into Latin, and about half a dozen for translation from Latin into English. The questions were : What is distillation? What is steam distillation? Define filtration. How would you filter a strong acid? What is evaporation? About a dozen B.P. doses were asked, including arsenious oxide, tannic acid, zinci sulphas, acetanilid, vinum antimoniale, plumbi acetas, hydrarg. perchlor., etc. The strength of liq. arsenicalis, liq. arsenicii et hydrarg. iodid., liq. sodæ arsenatis. How are these made? Strength of spt. chlorof., spt. camphoræ, pulv. antimonialis. How made?

Materia Medica.—Here I was shown strophanthus. What is its botanical source, natural order, habitat, and its active principle? Is its active principle an alkaloid or glucoside? What is the difference between an alkaloid and a glucoside? What impurities occur in bees'-wax? How would you test for these? Shown specimens of gentian, ipecacuanha, hemlock, rhubarb, cloves, ginger, podophyllum, and senega. What is the active principle of senega? What causes the frothing in infusion of senega?

Poison Law.—What is meant by section 5? The part of the Schedule the following are on : Cocaine, picrotoxin, strophanthus, tartar emetic, antimonial wine, hyd. ox. rub., lin. aconite, oxalic acid, aqua laurocerasi, and carbolic acid.

I was very glad to see the President of the Board of Examiners hold out his hand and give the smile which I knew was the smile I wanted. M. G. (17/7.)

The Nervous Student.

By a Students' Friend.

The primary condition is the attitude of mind. Many students begin their studies obsessed by the amount of work there is to be done; they belong to the class which is beaten before the start. If a man has a long road to travel and he begins to think of the miles he has to tramp, he calls them weary miles and arrives at his journey's end dead to the world. If, on the other hand, he moves steadily forward, buoyant and conscious of his progress, he is sure and so is the triumphant end.

The examination failures are of three kinds: One, the nervous variety, which realises its fears; the other, which comes down by accident, or by some mental kink always succeeds in doing the wrong thing; the third is the temperamentally unsound. The last-named class might make good salesmen, but will never make pharmacists through a curriculum save by a fluke. The man with a kink for doing the wrong thing needs special mental discipline. The nervous variety is the one which gets our sympathy but really deserves something else, better described as a stimulus to overcome needless fears.

A word to this class may be useful. It is the state of mind brought about by brooding over difficulties. The examiners are almost invariably men of the world, with broad sympathies and very human. Questions and answers are always difficult, but if the nervous ones would only plunge and give some form of answer direct instead of hesitating, they would deal the first blow at nervousness and soon find out whether they have interpreted the examiner's question rightly. The instinct of flight is produced by the emotion of fear. The obvious answer is "to fight," and the resolution to do so tones the nervous system and helps it to overcome. Many put down their failure to nervousness when it is really not the true cause. A strange surrounding produces a mental effect which leaves many almost tongue-tied, it affects everyone to some extent, but the first word of the examiner is like a command to action on the trained men, the untrained or partially trained have much slower reflex action. If the question is not definitely clear they become confused and flounder, some recover, a large number go under. It is a feeling which may be cultivated to feel easy under all ordinary circumstances, self-controlled, breathing naturally, without stress or strain, and, above all, cultivate an acute interest in all that is taking place.

The method of study is first and foremost to cultivate the capacity of seeing everything with the mind's eye, in other words, visualise every scrap of information, formulas, reactions, roots, barks, appliances, burn them so deeply in that they are seen clearly when you close your eyes. You know then they are fixed indelibly in your mind. The next step is "expression." The British are a tongue-tied people, so we are told. I do not believe it; they are not a chattering people, but when they like to express themselves they can, the trouble is they do not think it worth while often enough. But no knowledge is of any value to the student or anyone else unless it can be communicated to another party. Hence, when the student has visualised his facts and forms of objects, begin at once to cultivate expressing whatever the impression is in words. Write down your own interpretation, it makes for accuracy; speak it out aloud, it makes for readiness in response. In order to remember, learn to associate the formulas, etc., with something familiar, and here it is usually found that the more grotesque the association the better it sticks. The acquisition of knowledge is easy if you visualise everything and never cease expressing in writing and speech all your impressions. Memory is a record of what the mind has clearly visualised, and open expression in your own words will bring the readiness of speech and confidence in your own knowledge which will banish all fear.

Winding up a Ministry.—The Secretary of the Liquidation Committee of the Ministry of National Service and Reconstruction announces that the work of the Department will be finally closed on September 30.

Personalities.

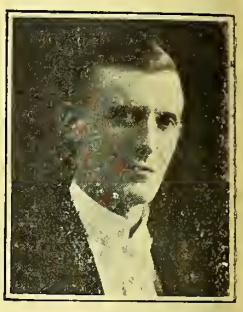
Mr. P. J. Donohue, general manager of E. R. Squibb & Sons, manufacturing chemists, New York City, is now on an extended visit to Europe, in order to study the various drug and chemical markets.

Mr. Herbert E. Kendrick, who was with Menley & James, Ltd., has taken up the managership of Sanborn Co. (London), makers of scientific apparatus, 11 Victoria Street, London, S.W. 1. He has also become associated with the Roy Hardy Advertising Service Bureau, 292 High Holborn, London, W.C. 1.

Mr. W. F. Roper, son of Mr. R. F. Roper, Ph.C., Tavistock Road, Plymouth, who is a student at Guy's Hospital, London, has recently passed his first examination for medical degrees. Mr. W. F. Roper saw service in France as a lieutenant in the R.F.A. Captain R. L. Roper, Mr. Roper's eldest son, is in Cologne with the army of occupation.

Mr. H. A. Martin, chemist, Leicester, conducts a Pharmacy Section in the July issue of "Display" (274 Edgware Road, London, W. 1), a journal devoted to window-displays. Two window-shows illustrated are by Mr. Martin, one devoted to sulphaloids and the other to castols. Previous issues contained articles by Mr. G. E. Marfitt. Both are *C. & D.* contributors.

Mr. R. S. Glennie, F.C.S., Ph.C., who has been appointed chief lecturer in pharmaceutics at the Royal Technical College, Glasgow (affiliated to Glasgow University), has been head of the pharmaceutical department at the Battersea Polytechnic, London, for the past two years, and on leaving that institution was the recipient of a pair of gold cuff links, presented to him by his students. Mr. Glennie was educated at Fraserburgh, and served his apprenticeship there with Mr. Alexander Gall, chemist and druggist. After passing the Qualifying examination in 1916 he gained a varied experience in the West End of London. It was Mr. Glennie's intention to take the B.Sc. degree; owing to a serious illness, however, he was compelled to abandon his studies in that direction, but was recently successful in the Major examination of the Pharmaceutical Society. Mr. Glennie has been a student at King's College, University of London, and at the Birkbeck College, Chancery Lane, E.C. 4. He has done considerable work in connection with the diseases of cultivated plants and in bio-chemistry. The Royal Technical College, Glasgow, accommodates over 6,000 students, and Mr. Glennie's many friends hope that he will find there ample scope for his gifts.



Mr. R. S. Glennie.

About 200 employés of the Newcastle and Gateshead branches of Boots, Ltd., visited Durham, on August 11 for their annual outing. Tea was provided on the racecourse, and various games and sports were afterward indulged in.

A Mysterious Death.—At a Blackburn inquest held on August 5 it was stated that the deceased, a farmer's daughter, had died after peeling off the cover of a golf ball with her teeth and swallowing some of the liquid from the centre of the ball. The inquest was adjourned for an analysis to be made of the contents of the ball.

German Export Duties Reduced.—Germany has reduced her export duties on a fresh category of wares in which foreign competition is being felt. These include finished optical instruments of nearly all kinds, photographic cameras and lenses—the duty on which is now 3 per cent.—surgical instruments and thermometers, which is fixed at 2 per cent.

Birth.

Reid.—At Bloemfontein, on July 18, the wife of James Reid (manager, Heynes, Mathew, Ltd., Bloemfontein), of a son.

Marriages.

Clarke—Jamieson.—At St. Mark's Church, Hamilton Terrace, London, N.W., on August 11, by the Rev. R. J. Clarke, M.A., Vicar of Carnmoney, Belfast (father of the bridegroom), Captain the Rev. H. J. St. John Clarke, Chaplain to H.M. Forces, to Nancy Marguerite, only daughter of Mr. and Mrs. Sidney Jamieson, 56 Leith Mansions, Maida Vale, London, W.

De Wolff—Arnold.—At St. Anselm's Church, Hatch End, on August 14, by the Rev. F. A. J. Bealey, Charles Edmond de Wolff, LL.D., C.B.E., only son of Mr. C. L. de Wolff, Purley, Surrey, to Ada Marjory, younger daughter of Mr. and Mrs. Henry R. Arnold, Hatch End, Middlesex (Burgoyne, Burbidges & Co., Ltd.).

Kemp—Preston.—At St. George's Cathedral, Cape Town, on August 9, by Dean Rolf, D. Kemp, Glasgow, to Elizabeth Merryweather (Bessie), youngest daughter of Mr. Job Preston, chemist and druggist, Barker's Pool, Sheffield. (By cable.)

Deaths.

Baxter.—As briefly recorded last week (*C. & D.*, August 14, p. 59), Mr. James Baxter, chemist and druggist, died at his residence, Arndilly, Grangemouth, on August 8, aged seventy-three, after a brief illness. Mr. Baxter was a native of Bannockburn, and acquired his early training in Stirling with the late Mr. Duncanson, Port Street. He commenced business in Grangemouth in the summer of 1868, being at that time the only chemist in the town. Nearly forty years ago he opened a branch at 1 Lumley Street, the present address of the firm, which eventually became the main business. Later on he was joined by Mr. Robert Marshall, chemist and druggist, and the firm became James Baxter & Co. Mr. Baxter retired in December 1918 after fifty years behind the counter. The business is now carried on by Mr. Robert Marshall at the Lumley Street address, while the Bridge Street business was purchased by Mr. Alexander M. Wood. Mr. Baxter was a member of the town council for ten years, seven of which he served as a magistrate. He was a prominent Freemason, being Master of Lodge Zetland, No. 391, in the years 1875-76. He was an office-bearer in the United Free Church for many years, and when the present edifice was built Mr. Baxter presented the congregation with the bell. His other interests included a directorship of the Forth Towing Co., the Grangemouth Savings Bank, and a past presidency of the Landlords' Association. A keen sportsman in his younger days, he continued to support the Volunteers and Miniature Rifle Club. His two younger sons, John and Gordon, died on service during the war. He is survived by a widow, one son, and two daughters. The funeral took place at Camelon Cemetery on August 11, the Stirling, Clackmannan, and Kinross Counties Pharmaceutical Association being represented by Mr. John W. Bennie (President), Mr. James Ferrier (secretary), and Mr. A. M. Wood.

Boardman.—At the City of Dublin Hospital, on July 28, Mr. John Henry Boardman, Ph.C. Mr. Boardman passed the Licence examination in 1876.

Lockyer.—At Sidmouth, on August 16, Sir J. Norman Lockyer, K.C.B., F.R.S., aged eighty-four. Educated on the Continent, he took up the study of astronomy in his leisure hours, but it soon became the business of his life. In 1868, in conjunction with Frankland, he discovered in the sun's spectrum an unknown element, subsequently named "helium." Sir Norman was appointed President of the British Association in 1903, and while holding this office was instrumental in founding the British Science Guild, of which he became President in 1912. On his retirement, in 1913, from the position of director of the Solar Physics Observatory, South Kensington, he carried on his observations at his private observatory at Salcombe Regis. He was the author of a number of publications, and the founder and editor of the scientific journal "Nature."

Meadowcroft.—At 36 Wesley Street, Swinton, Lancashire, on August 5, Mr. Thomas Meadowcroft. Mr. Meadowcroft was for many years with the late Mr. James Berry, chemist and druggist, Newtown, Pendlebury.

Milne.—At the Royal Infirmary, Aberdeen, on July 31, Mr. Joseph Reid Milne, chemist and druggist, aged thirty-four. Mr. Milne was in business at 49 The Green. Previous to becoming proprietor he was the manager for a number of years.

Van Leersum.—At Amsterdam, on August 4, while on a visit to Europe, the well-known quinologist, Heer P. van Leersum, aged sixty-six years. Born at Utrecht on January 28, 1854, Van Leersum studied pharmacy under Gerrit Jan Mulder and Wefers Bettink, and, following his appointment as military pharmacist in 1878, went to Java, which became his home. He remained in the army until 1884, when he was appointed assistant director and analyst to the Government cinchona undertakings, of which he became director in 1898. This position carried with it that of director of the Bandoeng Quinine Factory, the post being held by him until his retirement in 1915. He made a special study of the cultivation of cinchona, and the Javanese planters owe a great deal of their enhanced prosperity to his exhaustive investigations on such points as the effect of shadow on the growing trees, condition of the soil, and the most productive variety of Ledgeriana. In some cases the application of his experiences led to an increase of no less than 60 per cent. in the yield of quinine on some plantations. In addition, he was a well-trained chemist, and brought the whole of his knowledge to bear on the problem of improving the methods for the manufacture of quinine, particularly with a view to reducing the cost of production. For some years he had ardently advocated the utilisation of a process he had elaborated whereby quinine might be produced on the plantation itself from the fresh bark. An indefatigable worker, he employed the leisure of a brief holiday to Europe in 1904 to follow a course of microscopic chemistry and bacteriology. Although fully occupied with so many practical questions, he still found time to engage in scientific research, one of his studies being the investigation of the alkaloid content of the leaves of cinchona, and the *rôle* played by the leaves in the formation of the cinchona alkaloids. His unexpected death is a heavy blow, not only to his numerous friends, but to the planters of the Dutch East Indies, as he had by no means severed his connection with cinchona on retiring from his official position; on the contrary, he was stated to have travelled to Europe for the purpose of purchasing the necessary machinery for the erection of a new quinine factory in Java, proposed to be started by a Japanese concern. A paper on "The Historical Development of the Manufacture of Quinine in British India and in Java," which was the last article written by him, was read at the Engineers' Congress at Batavia in May this year.

Mr. William Hoskin Austin, Ph.C., 62 Alcester Street, Stoke, Devonport, who died on June 4, left estate of the gross value of 1,364*l.*, with net personalty 1,162*l.*

A Trap for Wasps.—A correspondent of the "Morning Post" recently wrote to that paper as follows: "Some years ago I planted some bushes of cotoneaster against a sunny wall—they flower about the beginning of June and the flowers have a great attraction for queen wasps. I go with a butterfly net whenever I have time to spare—I used to kill a hundred or more during the days the flowers are out, but now I get very few—only twenty-five this year. My gardener used to spend a great deal of time going round with cyanide of potassium, but now he never asks for any."

Trade Notes.

B. W. & Co.'s Price Alterations.—A list of the alterations in prices during July of the products of Burroughs Wellcome & Co. is given in this issue.

A. & H. Soaps.—Edward Cook & Co., Ltd., Bow, E. 3, make an important statement in regard to the manufacture of the medicated soaps formerly sold under Allen & Hanburys' name.

Zorbo Window-display.—Robert Bailey & Son, Ltd., Stockport, show in their advertisement in this issue how to make an effective window-show with Zorbo cottonwool—a problem which even an expert window-dresser might hesitate to tackle.

French Chloral Hydrate.—Antoine Chiris, Ltd., Grasse, France, have converted a factory, built and equipped by them during the war for the manufacture of gas, to peace-time activities. These will be concerned chiefly with the production of chloral hydrate at competitive prices.

"Ciba" Brand Chemicals.—The Clayton Aniline Co., Ltd., 68½ Upper Thames Street, London, E.C. 4, send us a copy of their price-list of a few of their leading pharmaceutical and photographic chemicals of which they are actual manufacturers. Further particulars about these will be found in the weekly page announcement in this journal.

Vaseline is being advertised to the public during September and October in many magazines and periodicals. The Chesebrough Manufacturing Co., 42 Holborn Viaduct, London, E.C. 1, give reproductions of the showcards which are being issued. It is suggested that chemists should see that they have ample supplies on hand to meet the increased demand which should be created.

Ayrton Complexion Wax.—We have received a sample of the first of an Ayrton series of high-class toilet-preparations by Ayrton, Saunders & Co., Ltd., Liverpool—a nicely scented complexion wax for face or hands. It is packed in an artistic tin of khaki, gold, and black, and will be followed by solidified brilliantine and talcum powder. The protected price of the wax is 1*s.* 3*d.* Messrs. Ayrton will send to any pharmacist particulars of a lantern-slide illustrating their cocoanut-oil shampoo.

Educational Institutions.—The following is a list of the educational institutions advertising in this issue:

Bath and West of England College of Chemistry and Pharmacy.
Battersea Polytechnic.
Birmingham and Midland College of Chemistry, Pharmacy and Botany.
Brighton Technical College.
British Optical Institute, Ltd.
City of London College.
Educational Institute of Scotland.
Elt's College.
Leeds Technical School.
Liverpool School of Pharmacy.
London College of Chemistry, Pharmacy and Botany.
London Hospital Medical College and Dental School.
Manchester College of Technology.
Manchester School of Pharmacy.
Royal Veterinary College.
School of Optics, Ltd.
School of Pharmacy of the Pharmaceutical Society.
Seurr, Mr. C. A.
South of England College of Pharmacy.
South-Western Polytechnic.
University College Hospital Dental School.
University College, Nottingham.
University of Durham.
University of Manchester.
West Ham Municipal Technical Institute.
Westminster College of Pharmacy.

"Evans' Journal."—The July issue of this journal, published by Evans Sons Lescher & Webb, Ltd., continues the articles on "Bacteriological Technique" and the "Cancer Problem." An article on "The Control of Bacteriological and Other Products" is interesting in view of the steps being taken by the Ministry of Health Committee to find out what control is required. The German products are now being imported, but are not subject to any control by the British authorities. On this matter "Evans' Journal" states:

> Some system of control is necessary [for salvarsan and similar compounds], but concerning the form the control should take it is difficult to decide. But there can be no two opinions in the case of salvarsan and similar products which are imported into this country, and apparently, according to a recent judgment of Justice Sankey, the importation of these products into the United Kingdom is quite legal, and cannot at present be prevented. Such importation, of course, enters into competition with the British products, which can only be made under the licence of the Board of Trade, and have to submit to certain requirements as to testing, royalties, etc. Imported salvarsan, etc., must be made subject to the same standard tests as are in force for the British-made product.

Business Changes.

Mr. B. M. Stoakes, Ph.C., Hull, has transferred his business from Whitefriargate to 93 Prince's Avenue.

Taylors' Drug Co., Ltd., have taken over the business of Booth & Openshaw, Ltd., chemists, Darwen Street, Blackburn (see *C. & D.*, May 15, p. 65).

Sanborn Co. (London), makers of scientific apparatus, whose blood-pressure outfits and Benedict metabolism apparatus created particular interest at the recent meeting of the British Medical Association, have opened offices at 11 Victoria Street, Westminster, London, S.W. 1. Demonstrations of the various Sanborn instruments will be given to medical men and others interested.

Information Department.

INFORMATION WANTED.

Postal or telephone information with respect to makers or first-hand suppliers of the undermentioned articles will be appreciated.

P/138. Jacoline marking-ink.
B/138. Meriton laxative pastilles.
BB/138. Collargol.
BB/138. Lestlejour bath tablets.
B/148. Fox Trot perfume (Vigny, Paris).
S/138. Hotlemuroma.
H/148. Taxal tablets.
H/149. Thymol naphthaline tooth paste.
A/168. Adolescent tablets.
N/168. "Sinolin."
W/168. Lysol bottles.
B/178. Orchard White.
L/178. "Mancur" nail clipper.

INFORMATION SUPPLIED.

Inquiries regarding the following articles have been answered. The information as to supply will be given to others who send a stamped, addressed envelope to the Information Department, The Chemist and Druggist, 42 Cannon Street, London, E.C. 4:

"Abdo" belts, MR/138
Animal charcoal, P/138
Anti-calcaire, R/188
"Bipepsogin," C/178
Bottles, J/178
"Capsol" dyes, S/178
Castor oil, in drums, M/138
"Cicfa," P/138
"Culmak" shaving-brushes, BB/138
De Roos gutta-percha, P/138
De Witt's Kidney Pill, K/168
Diabetic jam, G/138
Dispensing labels, M/178
Ektogan, B/168
Ethyl chloride, BC/138
Exorrhoid hæmorrhoidal jelly, LB/138
"Featheredge" rubber sponges, T/138
Galvano-electric socks, S/168
Germinol, A/138
"Gets-It" corn cure, T/138
"Glen" sulphur soap, H/138
Logan's liniment, RC/98
Lymphatic gland tablets, C/138
Miol, P/138
Mosquitox, S/138
Nail files, T/138
Nail-polish pads, T/138
Ointments, in tins, HT/168
Phloroglucin, B/168
Pluto water, B/168
"Pruh," S/138
Quinidine tablets, M/128
"Radiol" for horses, P/138
Soap-making machinery, C/178
"Therapion," T/138
Tongue depressors, H/97
"Urace," H/118
Urodonal, C/97
Vacuum flasks, M/167 and G/118
"Valda" pastilles, K/168
Vioform, L/118
Wilson's Corega, C/138
"Wonder" dyes, MR/98
Yadil, H/138

Observations and Reflections.

By Xrayser II.

The Proprietary Medicines Bill,

if its only object is, as its promoters say, to protect the public from injurious or fraudulent patents, is being very badly served by its advocates, both in and out of Parliament. Methinks these gentry do protest too much when they thus define their aim. There is at least a suspicion of unconscious hypocrisy in their attitude. They combine so much professed respect for vested interests, for public opinion, public convenience, and the reputation of those (or many of them) who will undoubtedly suffer grievously if this Bill becomes law, that one wonders how they can possibly reconcile their action with their words. Viscount Astor, for instance, protests that in the matter of advertising he aims only at "the less reputable newspapers." One wonders which they are! Two, at least, of the best-known and most influential London dailies (to go no further afield) have condemned his Bill as a bad one, as "a new invasion of liberty." The medical Press, again, and more obviously, while ostensibly opposing only fraudulent patents, shows unmistakably that it supports the Bill in the hope that it will virtually suppress patents altogether. Nobody can complain, we are told, if the "fancy medicines" of the chemist's shop disappear; does not the panel doctor remain? It speaks of the "vast and cruel frauds of the vendor of quack medicines," and regrets only that out of care for vested interests the Bill may be so amended as to rob it of all value; and the only reason suggested for the opposition the Bill is meeting with is due to these selfish interests. Now nobody denies that

Fraudulent Patents

do exist and ought to be suppressed, as all fraud ought to be. The only difference in this respect between us and these advocates of the Bill is that they would willingly end the whole trade in patents, root and branch (as, indeed, many of them openly confess), whereas we would not have the wheat destroyed along with the tares. But there *is* no wheat, no useful grain, in the whole field, they would have us think, and perhaps themselves believe; the whole business is, if not conscious fraud, at least a mischievous delusion. "Very well, then, oppose it openly as such," we would reply; "you have every advantage on your side in such an undertaking; you are the profession, and wisdom will die with you; you have learning, influence, prestige; every channel of influence is open to you; there is this new Ministry of Health, with its boundless possibilities of propaganda, ready to your hand. Why not rely upon the strength of your cause?" They dare not; they are not sufficiently sure of it; so they avail themselves of this subterfuge; it is fraud only that they aim at!

Adsorption

is a word Dr. McWalter does not like. Perhaps, like me, he is disposed to dislike all new words, but sometimes they are necessary. "Adsorption" clearly differs from "absorption" in meaning, and a comparison of the two may justify the new formation. The most that the prefix *ab-* does when combined with *sorbeo* is, I take it, to strengthen its meaning somewhat, for *sorbeo* itself means in general to suck in, to swallow—in fact, to absorb. My Latin dictionary tells me that *ad* is antithetical to *ab*, as *in* is to *ex*; and *ad-* in combination would, therefore, seem intended to weaken the meaning of the verb to which it is prefixed—when, that is, it does not add anything, as, for instance, the notion of nearness or motion towards. Thus *accido*, in which *ad-* becomes *ac-*, means to cut all but through. *Adsorption* may well, therefore, be used to denote a more gradual, or less complete process than *absorption*. I may misunderstand its use as exemplified in the paper of Mr. Jensen and Dr. McWalter's letter, and my suggested explanation of the reason for it may be all wrong, but if so it may draw a correct explanation from a better scholar than I can pretend to be.

Your Correspondent "Scotus"

reminded me the other week that the proposed standard for assistants' wages is not necessarily a maximum. No; but the fact only emphasises the point of my note, or, rather, it not only does that but destroys the principle upon which uniformity of wages is made to rest in the political economy of trade unionism. That principle is (or was) that every workman who does the same kind of work should be paid at the same rate, irrespective of the quality of his work. If such differentiation as "Scotus" suggests is to be admitted, our pharmaceutical trade unions are betraying the cause for which they stand. If the minimum is exceeded in any case it must be exceeded in all, and the difficulty I foresaw cannot, therefore, be met in the way "Scotus" proposes; it is but brought into greater prominence by the proposal.

Mr. Saunders' Account

of his observations abroad excites mixed feelings. It makes excellent "copy," is most vividly told, most interesting, most instructive, and one of his readers at least envies him the opportunity of such a tour and the ability to use it as he has done. But one is a little doubtful of the moral Mr. Saunders would draw, and he has apparently not yet made up his mind what it is to be. We need not wonder at that: the future of pharmacy is a big proposition; we are seemingly at the parting of the ways and may well hesitate which turning to take. There is no use in blinking the fact that we are threatened with the Americanisation of our business: ought we to welcome this or resist it? I should like to ask Mr. Saunders whether, upon the whole, he thinks the American or the Australian and New Zealand mode the more profitable. That is not, I know, the only, and with myself it would not be the chief, consideration, but with the bulk of us it would, I suspect, be paramount. It has been argued that the American ideal is not so suitable to our national character as it is to theirs, but, with the success of many of our great stores in view this may be doubted. The fact that Australia prefers our style is, however, not without significance. Mr. Saunders advises young men to gain experience abroad, but it is possible so to get out of touch with home conditions by going too far or staying too long abroad as never to be able to adjust oneself to them again Of four friends of mine who respectively went to India, to China, to South Africa, and to Southern Europe, only one ever settled down at home again, and he was not perceptibly affected either for good or for evil by his sojourn abroad.

"Sherry-glass"

is simply another name for wineglass. It is, I admit, most undesirable that medicines should be measured in wineglasses, the capacity of which varies considerably, but the one term is as defensible, and, I venture to think, would be as well understood, as the other. The question of capacity is another matter. Like your correspondent, I am in the country and cannot refer to authorities, but we used to be taught that a wineglassful (*Cyathus*) is equivalent to an ounce and a half. The only dictionary I can find in the house in which I am staying (date 1917) has, however: "*Wineglass*, any glass for drinking wine from, especially of size used for sherry, often as measure of medicine to be taken=four tablespoons." Also, under *Sherry*: "Sherry-glass, wineglass containing about four tablespoons." I have had the curiosity to measure my friend's sherry-glasses, and find they hold an ounce and a half only, which is in accordance with my recollection of old dispensatory definitions. "Sherry-glass" is, on the whole, a better term of measurement than "wineglass," being more definite.

Owing to the high cost of material, we understand that a certain pill is to-day worth 1*l.* 11*s.* 6*d.* a box.—"Punch."

Swedish Soap Trade.—The fusion of interests which hitherto existed between all the Swedish soap manufacturers has now been dissolved and free competition has begun, with the result that the prices of all kinds of soap have been considerably reduced.

"SANITAS"
DISINFECTANTS
FLUIDS, POWDERS, SOAPS & FUMIGATORS
Should be stocked by all Chemists.
THE "SANITAS" CO., Ltd., Limehouse, LONDON, E. 14

An announcement of particular interest to you appears in this issue on page 62

"TARTOLA" BRAND
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NIGROSINES
CRYSTALS
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Manufactured by
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VETERINARY COUNTER PRACTICE. 6/-. by post 6/6.
CHEMIST'S DICTIONARY OF MEDICAL TERMS. 3/6, by post 3/10

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There are many worrying difficulties to be overcome in connection with the Registration of Trade Marks and the grant of Letters Patent which members of the Retail and Wholesale Drug Trade can avoid by consulting an efficient agent, who would undertake all the trouble for an inclusive fee and obtain protection in the United Kingdom and abroad. Advice in the first instance free. Pamphlets gratis.
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Editorial Articles.

The Educational Outlook.

Pharmaceutical education in Great Britain may now be said to have passed from the stage of indifference over the method of acquisition to one of acute interest on the part of the statutory authority. One effect of the war has been to accentuate the need of education in all departments of national life, and pharmacy has participated in the movement. Universities and technical colleges are awaking to the need of the equipment of their graduates and students with the necessary training to fulfil whatever function in life they choose. In pharmacy, at present, there is not that close co-ordination of the course of training which is fundamental to those desirous of a scientific or quasi-scientific career, as in pharmacy. The public expression of education authorities shows clearly that our syllabus of studies has been wanting in the application of imagination in order to fit it into the scheme of things which every man of affairs with scientific training requires. Thus pharmacists repeatedly proclaim the lack of business knowledge, and men with the commercial instinct as the dominant factor never cease to tell us that this is our characteristic deficiency, that the curriculum leaves us on the threshold of science, and it is largely owing to that dangerous thing, "a little knowledge," we are bereft of our capacity, or at least diverted from the opportunity, of making a commercial success of our lives. Surely this is untrue. Pharmacy, even in its haphazard days, provided a mental training capable of equipping men for almost any sphere of action or thought for which they felt promptings. It was the haphazard way of entering pharmacy which was wrong, since temperamentally indifferent men drifted into the calling. Now that training is being systematised, it will undoubtedly provide a class of men and women equal to the best. The temperamentally unsuitable will not enter as in the past, but fight shy of the curriculum and knowledge of what they have to undertake. Training that is sound is bound to make the pharmacist of the future a man capable of viewing the problem of commerce with a breadth of vision infinitely

superior and sounder than what passes as such in the hectic talk of these ruffled days of peace. We say "training that is sound," and therein lies a deep meaning. Too much stress should not be laid upon the results of the July examination. On this presentment it looks as though the first round was against a curriculum, but closer examination will scarcely bear this out. Some of the material was based on insufficient preliminary training, and the lack of mathematical knowledge is a handicap to proper appreciation of chemical problems. Botany would appear to have been a big stumbling-block in Part I., and for this we cannot acquit those who still continue an archaic syllabus. Physics, even with its present limited dimensions, was scarcely appreciated, and practical acquaintance with the subject was at a discount. The remarkable feature of the examination was the success in Part II. of those who had weathered Part I. All this points to the urgent need of sufficient preliminary grounding in the science subjects. The action taken by the House or Educational Committee, and confirmed by the Pharmaceutical Council, in laying itself out to encourage preliminary study of the chemistry and physics of everyday life should lead to infinitely better results with ex-Service students in July 1921. Owing to the large number of examinees—in London, 1,204—it was necessary to increase largely the number of examiners, and this would appear to have raised some misgivings that the standard might have been unconsciously increased. However, there does not appear to be much foundation for this, and every new examiner had had practical experience beforehand with the other examiners in the examination of candidates. Bearing all the facts and conditions in mind, the results show the need of continuing the development of the method of training from registration onward. The necessity of registering, so that the 4,000 hours shall count, should in future eliminate any haphazard entrance into pharmacy. The co-ordination of Preliminary examinations which was the aim of Mr. Fisher, the Minister of Education, has not materialised. We must wait a little longer for this desideratum, as our Ministry of Education is notoriously slow to move. The next point which requires the attention of educationalists is how shall the 4,000 hours be spent? The Education Act will provide for the science training and easily equip men for Part I. without undue strain, and the last examination teaches us that the proper grounding in this subject will make easy the passage through Part II. Though the Education Act development is due, the overlapping of ex-Service students will absorb all educational facilities, so that we cannot expect early advance along these lines. On the other hand, the Pharmaceutical Council has selective power in the recognition of schools, and is exercising it carefully and judiciously through the medium of its technical adviser, Major Peck. The omission of public service pharmacy from the Pharmacy Act of 1868, and in spite of the slight recognition of this branch in 1908, has given power to the Council for recognition of training in institutions, but probably only an Act of Parliament would enable it to exercise supervision over training in shops for the 4,000 hours. We outlined in our articles on reconstruction in 1918 the lines of development in education, and though the present methods are somewhat confused, it is, we think, only due to congestion; the foundations are being well and truly laid by men who are keen and anxious to ensure that pharmaceutical training shall equip pharmacists so that they can adapt themselves to whatever may be needful for the future well-being of our national health.

Overseas Trade in July.

By the issue of the Board of Trade Returns for July it is clearly demonstrated that the undoubted slackening off in home trade does not apply to exports, as the figures now issued compared with the corresponding month of 1919 have advanced by 72,136,000*l.* to a total of 137,452,000*l.*, which is a "record" for the current year, exceeding by about seventeen millions sterling the highest monthly figure reached during this period. A further encouraging sign is the check that has been given to the increase in imports, which at 163,342,300*l.* are still ten million more than in July 1919, but they are the lowest for any previous month of the current year, and about seven million sterling less than in June. The re-exports at 17,848,000*l.* were the smallest during the current year, which is somewhat curious, and points to the fact that the Continent has now better facilities for direct shipment from the sources of supply. These figures reduce the apparent adverse trade balance to a mere eight millions sterling, by which the net imports exceed the exports, but when allowance is made for the so-called invisible exports in the form of freights and investments the real balance is heavily in this country's favour. As usual, the most encouraging feature is the advance in British manufactured goods, amounting in July to 67,941,000*l.*, exports in this section amounting to 118,954,000*l.*, the *plus* sign being apparent in all the scheduled items. Cotton yarns and textiles lead off with 21,406,000*l.* more, and other textiles are 12,000,000*l.* more. The chemical, drug and associated trades showed remarkable activity, exports amounting in value to 4,461,000*l.*, or 2,571,900*l.* more than in July last year, and 2,948,000*l.* more than in July 1913. Considerable expansion took place in the exports of drugs and medicines, the values being 624,294*l.*, or 270,780*l.* more than in July last year. The British quinine and quinine salts exports, 342,884 oz., were valued at 117,854*l.*, against 365,232 oz., valued at 45,979*l.* only, in July a year ago. On these declared figures it will be seen that the cost of quinine to the buyer worked out at 6*s.* 10½*d.* per oz. f.o.b. in July this year, whereas at this period a year ago he paid only 2*s.* 6¼*d.* per oz. f.o.b., which all points to the fact, if the official figures are correct, that handsome profits are being made by distributors compared with a year ago. We also note that of foreign-made quinine and quinine salts 98,932 oz. was re-exported, valued at 14,492*l.*, which works out at 2*s.* 11*d.* per oz. f.o.b., whereas at this period last year 212,210 oz. of foreign make was exported, costing 20,294*l.*, or almost 1*s.* 11*d.* per oz. f.o.b. To complete the figures we give the imports of quinine and quinine salts in July, which were 157,824 oz., valued at 25,541*l.*, or slightly over 3*s.* 2¾*d.* per oz. c.i.f. Among the more interesting exports of chemicals were the following:

	July	1913	1919	1920
Acid sulphuric ...	...(cwt.)	19,829	4,060	10,237
,, tartaric ...	...(cwt.)	1,054	712	2,859
Ammon. chlor. ...	...(tons)	263	340	644
,, sulphate ...	...(tons)	21,490	5,572	11,582
Bleaching powder ...	.. (tons)	48,900	19,856	30,578
Coal tar products ...	.. (£)	134,563	102,989	365,104
Copper sulphate ...	...(tons)	1,696	1,911	671
Glycerine	...(cwt.)	30,624	5,379	25,365
Potash compounds...	...(£)	20,659	16,205	86,361
Soda compounds ...	.. (cwt.)	671,405	524,560	868,873
Chemicals, other sorts	...(£)	221,481	372,509	837,407
Painters' colours ...	...(cwt.)	211,802	101,831	161,078
Drugs and medicines	...(£)	210,206	353,514	624,294

These figures bear eloquent testimony to the activity in the chemical trades, particularly in sodium compounds, coal-tar products, and unenumerated chemicals. On the seven completed months of the year the figures are almost double the pre-war year 1913, being 23,433,500*l.*, against 12,143,000*l.* Turning to the imports of chemicals and drugs we find an increase of 636,377*l.*, the actual figures being 2,602,700*l.*; the features were a large increase in soda nitrate, cream of tartar, tartaric acid, and miscellaneous chemicals, but crude drugs and medicines declined somewhat. There was a decline of 2,085,000*l.* in oils, oil-seeds, etc., which is not surprising in view of our previous heavy purchases.

Grants to Ex-Service Men.

We stated some time ago (*C. & D.*, July 31, p. 38) that students who had received Government grants and had failed to pass the Qualifying examination were eligible for a further grant, under certain conditions, for three months. We are now informed that this is not the case, and we believe that the definite decision not to make further grants was arrived at after our paragraph was published. We should be glad if ex-Service men will note that no further grants will be made, as it is considered that the length of the curriculum should have ensured success at the subsequent examination. It will be recognised that those who have had the advantage of a systematic course of instruction will be able by private study or short courses in the subjects in the knowledge of which they were deficient to prepare themselves efficiently for the next examination.

"Synthetic Drugs."

Lord Bledisloe has been a Fellow of the Chemical Society since 1896, and it was somewhat of a revelation to find that he has the haziest idea of what a "synthetic drug" is (*C. & D.*, August 14, p. 57). He asked innumerable questions regarding these remedies when he was a member of the Select Committee on Patent Medicines, but did not "give himself away" until last week in the House of Lords, when he told the Marquis of Salisbury that a synthetic drug is (1) "a drug which is composed of natural products," and (2) "a drug which is not a natural product, but by the mixture of natural ingredients it becomes a drug," both of which definitions are painfully deficient in lucidity. The following definition by Dr. J. T. Hewitt should be committed to memory, and, if fired off at an appropriate opportunity, may help his lordship to rehabilitate his reputation for chemical knowledge:

The term "synthetic drug" implies that a substance is artificially produced, and that it finds a use in medicine, so that numerous fairly simple compounds could be logically included. Common usage has, however, restricted the term to more or less complex carbon compounds, which are either prepared by truly synthetic methods (*e.g.*, veronal), or by modifying the structure of naturally occurring compounds by oxidation, reduction, acylation, alkylation, etc.

Parsley as Gall-stone Cure.

An interesting letter appears in the "British Medical Journal" which should cause the advocates of prevention of self-medication to abate their ardour. The letter is from a medical man, who relates a case in which an elderly lady suffered severely from gall-stones, for which the only suggestion the consultant could offer was an operation upon the gall bladder. The patient was most strongly opposed to undergoing any operation, and in this opinion she was supported by the case of a lady who, suffering in a similar manner, took infusion of parsley and was cured. The patient resolved to try the remedy, taking about 1½ pint daily of an infusion made by soaking a good double-handful of fresh parsley-leaves in cold water, which was afterwards brought to the boil, strained, and allowed to cool. To put it shortly, this treatment, persevered with practically ever since, seems to have cured her. She remains free from pain and sickness, and the mass felt in the region of the gall bladder has disappeared. She is no longer emaciated, and the general condition is satisfactory. The doctor adds: "The whole case is most striking, and it would seem that the improvement must certainly be the result of the treatment, for practically nothing else was done." A less broadminded doctor would have sneered at the suggestion and walked out of the house in a "huff," as many doctors object to patients exercising their own discretion.

Glucose in Jam-making.

The Ministry of Agriculture and Fisheries, in leaflet No. 354, recommend the use of liquid glucose for economising on the amount of sugar required in jam-making. This was the purport of a previous circular issued during the war, which brought inquiries from chemists not only for glucose, but in regard to the method of employing it in jam-making. The new circular prescribes a mixture of 6 lb. of sugar and 2 lb. of glucose (or 1½ lb. in the case of ripe fruit) as likely to give the best results. The method of using is as follows:

Put the fruit into a preserving pan and add just sufficient water to break down the texture when the fruit becomes heated; ripe fruit requires less water than green fruit. Add the sugar, and stir until completely dissolved. Add the glucose (corn syrup) after the sugar crystals have all been dissolved. Boil rapidly, stirring briskly to prevent burning. The point at which boiling may be stopped can be ascertained by testing a little of the jam on a cold plate; if there is no sign of its becoming firm on cooling, keep on the boil until a "set" is obtained. Over-boiled jam is usually too stiff and solid, and consequently is not so appetising as when correctly boiled.

Proprietary Medicines as Luxuries.

The German Minister of Finance has now issued a list of proprietary remedies, on the sale of which the "luxury-tax" has to be levied. It is interesting to note that in the introduction the Minister states that the following organisations were consulted with regard to the elaboration of this list: The Imperial Board of Health, the German Medical Association, the Association of Veterinary Surgeons, the German Pharmaceutical Association, the Druggists' Association, the Central Board of the Technical Chemical Industry, the Association of Manufacturers of Trade-marked Goods, and the Union of Pharmaceutical Manufacturers. In England the practice with a Government Department seems to be to consult any stray medical man who happens to be known to the civil servants concerned. Among the large number of preparations enumerated in the German list are the following:

Albert's Remedy.
Allcock's Bunion Plaster.
Allcock's Corn Plaster.
Allcock's Porous Plaster.
Antipon, liquid.
Asthma Cure, Hair's.
Ayer's Cathartic Pills.
Ayer's Cherry Pectoral.
Ayer's Hair Vigour.
Ayer's Sarsaparillian.
Battle's Bromidia.
Beecham's Pills.
Benson's Plaster.
Bickmore's Wound Cure.
Blair's Gout and Rheumatic Pills.
Bowyer's Spikenard Ointment.
Bromo-Seltzer.
Colchi-Sal.
Compound Tincture Calumba.
Compound Tincture Sumbul.
Coza Powder.
Elliman's Embrocation (except Embrocation for horses).
Eno's Fruit Salt.
Exthol Battle.
Formamint.
Huxley's Syrup of Acid Glycerophosphates.
Johnson's Belladonna Plaster.
Johnson's Burgundy Pitch Plaster.
Johnson's Capsicin Plaster.
Kidd's Remedies.
Laton's Remedy.
Morrison's Pills.
Mother Seigel's Pills.
Mother Seigel's Syrup.
Munyon's Homœopathic Home Remedies.
Papine Battle.
Ray's Nervol.
Ray's Pills.
Rice's Lymphol.
Royal Windsor Hair Regenerator.
Smith's Gloria Tonic.
Specific Asthma Cure, Tucker's.
Styptic Pencils of the N.Y. Compressing Co.
Warner's Safe Remedies.
Williams' Pink Pills.
Williams' Porous Plaster.
Winox.
Winter's Nature Health Restorer.

This should dispose of the assertion often made in official circles that proprietary medicines are not allowed to be sold in Germany.

Educational Information

Pharmacy.

Great Britain.

"Modern education," wrote P. G. Hamerton in "The Intellectual Life," "is the beginning of many things and little more than a beginning." The quotation most certainly applies to pharmacy. It is a threshold subject giving glimpses of many possibilities, but, unless undertaken with some of the true spirit of education and progress, it will most certainly bring disappointment. Considered as a training, rightly undertaken and with application of the right method, it will certainly equip the individual with the capacity of reaching his objective, whether it be the intellectual life or that of commerce. The examination is a test of training, it covers an immense range of subjects, and, just as the trained athlete reaches his goal without stress, so will the student come through his ordeal without stress or strain if he or she accepts it in the sense of mental training, and not as a collection of correlated facts capable of producing mental congestion unless the whole is well planned and systemised.

Preliminary Examinations.

The first step on deciding to take up pharmacy as a means to live is to secure a certificate covering the following subjects: English, arithmetic, algebra, geometry, and two optional subjects, of which it is recommended that Latin should be one. These subjects must have been passed at not more than three examinations of the same examining authority. The Registrar is empowered to accept certificates covering the six subjects, and with the proviso stated above, but any deviation from this may be considered by the Pharmaceutical Council on its merits.

Chemist and Druggist Qualification

(in brief)

For those now entering Pharmacy.

1. **Notification and Registration of having passed an approved Preliminary Examination.**
2. **Apprenticeship, during which provision should be made for attendance in approved technical institutions of 300 hours in Chemistry, 60 hours in Botany, 60 hours in Physics.**
3. **Take first part of Qualifying Examination in Chemistry, Botany and Physics.**
4. **Complete the necessary 4,000 hours' experience in an open shop or approved public institution, during which, or after, spend 600 hours in Pharmacy, 120 hours in Materia Medica, in an approved school.**
5. **At the age of 21, or thereafter, second part of Qualifying Examination in Pharmacy, Materia Medica, Poisons Law.**

List of Certificates Accepted.

University of Oxford.
Junior or Senior Local Examinations.
Higher Local Examinations.
Responsions.

University of Cambridge.
Junior or Senior Local Examinations.
Higher Local Examinations.
Previous Examinations.

University of London.
Matriculation Examination.
Higher School - leaving Certificate.
Junior School Examination.
Senior School Examination.

University of Durham.
School Certificate Examination.
Higher Certificate Examination.
Certificate of Proficiency Examination.

Universities of Manchester, Leeds, Liverpool, Sheffield, and Birmingham.
Joint Matriculation Examination.
School Certificate Examination.
Junior School Examination.

University of Bristol.
School Certificate Examination.

Universities of Edinburgh, Aberdeen, Glasgow, and St. Andrews.
Preliminary Examination in Arts, Medicine, or Science.
Junior and Senior Local Examinations.

National University of Ireland.
Matriculation Examination.

University of Dublin.
Public Entrance Examinations. (For "High Places.")

Royal University of Ireland.
Matriculation Examination.

Royal University of Belfast.
Matriculation Examination.

Pharmaceutical Society of Ireland.
Preliminary Examination.

University of Wales.
Matriculation Examination.

Scottish Education Department.
The Intermediate Certificate or Passes in the Higher or Lower Grade of the Leaving Certificate Examination.

Intermediate Education Board for Ireland.
Senior or Middle Grade Certificate Examination.

Central Welsh Board.
Honours, Senior or Junior Certificate Examination.

Oxford and Cambridge Schools Examination.
Higher or Lower Certificate Examination.

Educational Institute of Scotland.
Medical Preliminary Examination.
Professional Preliminary Examination.

College of Preceptors.
Senior or Junior Certificate Examination.

The war concessions have now ceased except where demobilisation has only just taken place.

A certificate having been secured complying with the conditions, it should be sent to the Registrar, the Pharmaceutical Society, 17 Bloomsbury Square, London, W.C. 1, accompanied by a fee of two guineas.

From this point the period of apprenticeship may be said to begin. The specified number of hours required to be spent in an open shop or approved public institution is 4,000. In addition, a curriculum must be undertaken before any portion of the Qualifying examination can be taken.

The Qualifying Examination.

The Board of Examiners sits in London and Edinburgh in January, April, July, and October for the purpose of conducting the statutory examinations; for the Major examination in April and July only. The Qualifying examination is in two parts, the first one including botany, chemistry, and physics, the second materia medica, pharmacy, dispensing, and poisons law.

Candidates who were registered as apprentices or students *before December* 31, 1919, are entitled to take the examination at one time. The fee payable is ten guineas, which should be sent to the Registrar, together with a certificate of birth showing the age of twenty-one has been reached, and a declaration that three years have been spent in translating and dispensing prescriptions. A slight concession is made to ex-Service men over the three years' requirement, application for which must be made to the Registrar. The necessary forms can be obtained from the Registrar. The examination in all other respects is the same as for those registered after the date given above.

To those entering pharmacy *after December* 31, 1919, the Qualifying examination consists of two parts, as previously mentioned. The first part can be taken before the age of twenty-one, the second part only after that age has been reached.

The fee payable for the first part is six guineas, and the conditions are: The candidate must have spent the requisite number of hours in botany, chemistry, and physics in an institution approved for the purpose by the Pharmaceutical Council. If a candidate fails in one subject and is referred by the examiner, he may be re-examined in that subject on the payment of the sum of three guineas. Failure in more than one means re-examination in all, and the fee is the same.

Having passed each subject in Part I., and completed 4,000 hours, not less than two years, in an open shop or approved public institution and reached the age of twenty-one, the candidate should send a birth certificate, together with another fee of six guineas and the necessary declaration of having completed the conditions on the prescribed form, to the Registrar. The examination in Part II. is conducted on similar lines to Part I., and success in all subjects entitles the candidate to be registered as a chemist and druggist by examination.

The pharmaceutical-chemist qualification may be obtained at a subsequent examination covering an extended syllabus in chemistry, physics, botany, and materia medica. The fee is three guineas, and the only condition is that he must be registered as a chemist and druggist.

All candidates have the choice of being examined in London or Edinburgh, and they are required to state the venue desired when filling up the entrance form; but during the present congestion due to the number of ex-Service men the Council have acquired the power to decide the allocation of English or Welsh candidates to either centre should the need arise.

Examination Changes.

The July examination was fixed as closing the period of transition on the educational side of pharmacy. We pointed out in our last Educational number the changes then pending, coupled with the division which came into operation last October. Those changes were mainly in form, not in substance. This transition period has now been extended for the benefit of ex-Service men so as to include all the examinations up to October 1921. Thus the first day was given over to the science subjects—namely, chemistry, botany, and physics. The last-named subject was represented by a syllabus of meagre dimensions, but in chemistry the practical work was so extensive that full justice to the subject could scarcely be done. To the new entrant into pharmacy chemistry will become a subject quite apart from the elements needed in practical pharmacy. This separation will simplify considerably the duties of the chemistry teacher, and it will be no longer necessary to keep an eye on the Pharmacopœia. There are a large number of universities, colleges, and technical institutions capable of giving instruction in the science subjects, but the number is much more limited for the purely pharmaceutical part of the examination. We give elsewhere a list of approved schools.

The Examination Syllabus.

The prospective changes can best be shown by an examination of the official syllabus, which in each subject we follow with our own comments.

Botany.

(*a*) Classification. The main divisions of the vegetable kingdom and their most important characteristics: Thallophyta, Bryophyta, Pteridophyta, Phanerogamia. The following Sub-classes and Natural Orders of the Angiosperms: Thalamifloræ, Calycifloræ, Corollifloræ, Monochlamydeæ, Petaloideæ, Spadicifloræ and Glumifloræ; Ranunculaceæ, Cruciferæ, Rosaceæ, Leguminosæ, Umbelliferæ, Compositæ, Solanaceæ, Liliaceæ. The description of Flowering plants in technical language.

The candidate is also required to recognise any of the plants in the following list:

List of Plants for Recognition.

Aconitum Napellus	Matricaria Chamomilla
Althæa officinalis	Mentha piperita
Anthemis nobilis	Mentha Pulegium
Atropa Belladonna	Mentha viridis
Avena sativa	Menyanthes trifoliata
Brassica alba	Œnanthe crocata
Brassica sinapioides	Papaver Rhœas
Bryonia dioica	Papaver somniferum
Cochlearia Armoracia	Pinus sylvestris
Colchicum autumnale	Prunus Laurocerasus
Conium maculatum	Quercus Robur
Cytisus Scoparius	Rosa canina
Daphne Laureola	Rosmarinus officinalis
Daphne Mezereum	Ruta graveolens
Datura Stramonium	Salix alba
Digitalis purpurea	Sambucus nigra
Dryopteris Filix-mas	Solanum Dulcamara
Fœniculum capillaceum	Taraxacum officinale
Hordeum distichon	Taxus baccata
Hyoscyamus niger	Triticum vulgare
Juniperus communis	Ulmus campestris
Juniperus Sabina	Valeriana officinalis
Lavandula vera	

(*b*) Morphology, including Anatomy. The external form of plants: Thallus stem, root, leaves, inflorescence, flower, fruit. The distinguishing features and common modifications of these structures. Principles of branching and different kinds of branch systems. Phyllotaxis, including vernation. The different kinds of buds, and their arrangement on the stem. A general acquaintance with the elements of plant anatomy; the vegetable cell, tissues, *e.g.*, meristematic, epidermal, fundamental, and vascular. The characteristic anatomical features of roots, stems, and leaves of flowering plants and ferns. The candidate is expected to recognise, by means of the microscope, and describe sections illustrating the above plant structures. The method of increase in thickness of stems and roots, and the characters of primary and secondary tissues. The characters of the flowers. The methods of pollination, self- and cross-fertilisation. The formation of the seed and germination.

(*c*) Physiology. The elementary facts in connection with the physiology of plants, including the nature and source of the food of plants, and the manner in which the raw materials are elaborated. Chlorophyll, its manner of occurrence in the plant; its functions and the conditions under which it discharges them. Reserve materials, their nature, mode of deposition, and the manner in which they are utilised by the plant. The manner in which plants grow, and the conditions necessary for the growth of a plant. The manner in which plants respond to external stimuli—*e.g.*, light, gravity, etc. Sexual and asexual reproduction.

This syllabus remains unchanged. It is rather a pity, as it does not synchronise with the present exposition of the subject in the universities and technical institutions. The only way to understand histology is by practical section cutting; even a bad section will teach more to the individual than the best of the bought slides. Phyllotaxis and such minor points can scarcely be considered on the same plane of importance as physiology. Still, it is on the syllabus as we find it the examination must be taken, but students should bear in mind the importance of not being obsessed by minor physical details and slur over practical work. The failures in the subject would be fewer if the student directed himself to a particular acquaintance through the microscope rather than read too literally the term used in the syllabus, "a general acquaintance with plant anatomy."

Chemistry.

An elementary knowledge is required of the following subjects:

(*a*) The chief characteristics of chemical action, the distinction of elements and compounds; the laws of chemical combination by weight and volume; the hypothesis of Avogadro; atomic weight and molecular weight; chemical formulæ and nomenclature; valency; the distinction between metals and non-metals. (*b*) The general characters of the non-metals; the chief methods of preparation and the typical reactions of the following non-metallic elements and compounds: Hydrogen, oxygen, ozone, water, hydrogen peroxide; chlorine, bromine, and iodine, and their compounds with hydrogen and oxygen; fluorine, hydrofluoric acid; nitrogen, ammonia, the oxides of nitrogen, nitrous acid, nitric acid; sulphur, hydrogen sulphide, sulphurous and sulphuric anhydrides and acids, thiosulphuric acid; phosphorus, phosphine, the oxides and oxy-acids of phosphorus, the chlorides of phosphorus; silicon, silica, fluoride of silicon, silicofluoric acid; boron, boric acid. The usual impurities in such of the above-named substances as are included in the British Pharmacopœia. (*c*) The general characters and classification of the metals, and the general methods of forming oxides and salts; the sources, the usual methods of extracting and the chief properties of the under-mentioned metals, also the modes of preparation, properties, adulterations, and contaminations of their principal compounds: Potassium, sodium, ammonium, lithium, barium, strontium, calcium, magnesium, zinc, aluminium, iron, chromium, manganese, nickel, cobalt, arsenium, antimony, tin, copper, bismuth, lead, silver, mercury, gold, and platinum. (*d*) Carbon, its oxides, cyanogen, hydrocyanic acid, cyanides, ferrocyanides, and ferricyanides, oxalic acid. The chief methods of preparing methane, ethane, ethylene, acetylene, methyl and ethyl alcohols, formic and acetic aldehydes and acids, ethyl acetate, acetamide, olein, glycerol, benzene, phenol, nitro-benzene aniline, benzoic acid, salicylic acid, hydrate of chloral, chloroform, iodoform, ether; the principal properties, reactions, and mutual relations of these compounds. The candidate will also be expected to possess a general knowledge of the methods of estimating carbon, hydrogen, oxygen, and nitrogen in organic compounds, and of obtaining molecular formulæ.

Practical Examination.—To recognise by chemical tests the more important non-metallic elements and compounds, as well as the metals and salts indicated in the foregoing list; to detect the chief impurities in those that are included in the British Pharmacopœia; to recognise by their physical properties those which possess well-defined characteristics. To analyse a mixture containing not more than two metals and two acid radicals.

To identify by chemical tests the following organic compounds: Hydrocyanic acid, cyanides, ferrocyanides, ferricyanides, oxalates, acetates, tartrates, citrates, salicylates, starch, cane sugar, grape sugar, salicin, quinine, morphine, strychnine, and their salts; and to detect the impurities in such as are included in the British Pharmacopœia.

To perform those volumetric determinations which are described in the British Pharmacopœia. To understand the principles of volumetric analysis, and to prepare, standardise, and use volumetric solutions.

To be familiar with the construction and use of the balance, and to have a practical knowledge of the Imperial and Metric Systems of Weights and Measures.

To quantitatively determine the total alkaloids in cinchona bark and its official preparations, in the liquid extract of belladonna and its preparations, and in the liquid extract of ipecacuanha; also the strychnine in the extract, liquid extract, and tincture of nux vomica; the morphine in opium and its extract, liquid extract and tincture; and the resin in tincture of jalap.

To have a practical acquaintance with the methods of preparing the more important inorganic substances, including the non-metals and their compounds, and such metallic compounds as are included in the British Pharmacopœia, and also the following organic compounds: Ether, chloroform, amyl nitrite, ethyl acetate, and hydrocyanic acid, so that he may be able to explain to the examiner the operations involved in their preparation, and if called upon, to perform the operations or certain stages of them himself.

The syllabus given above, though it remains the same for the present, will have for the new entrant certain sections transferred. The transferences will be:

(*a*) Knowledge of the usual impurities of the pharmacopœial chemicals.

(*b*) (From the practical.) Detection of impurities, and recognition of well-defined pharmacopœial chemicals

(*c*) Detection of impurities in pharmacopœial organic compounds.

(*d*) The volumetric determinations of the Pharmacopœia.

(*e*) The assay work of galenicals.

(*f*) Practical acquaintance with the preparation of metallic compounds included in the Pharmacopœia.

All these will be transferred to Practical Pharmacy. It follows that students now being registered will have to deal with pure chemistry without thinking in terms of what may or may not be included in the Pharmacopœia. All the analyses will stand, volumetric or otherwise, and by the elimination of specific pharmacopœial methods it will mean more time can be given to the examination in chemistry and a better chance for the candidate. The system will tend to exclude fluke success. Students should understand the real causes of failure in chemistry. They arise largely from slurring over fundamentals and not from the extent of the syllabus. True, there are links wanting in the chemistry syllabus which would materially help in getting a complete knowledge of the subject so far as the Qualifying examination is concerned, but the absence or even partial knowledge of mathematics is a great handicap in the acquisition of an understanding without which the superstructure is bound to be shaky. Therefore we urge students to make sure of the basic principles, for by doing so the knowledge of the relationship of all the various details becomes a matter of mental classification. One further point in chemistry—it is essentially a practical subject. The student should take nothing as gospel. Let him apply the questioning mind, and, if a statement is made, verify it; make everything possible, for by doing so he is building on rock and not on shifting sand.

Physics.

The law of the conservation of energy; the law of gravitation; the balance; specific gravity; atmospheric pressure;

Syllabus for Qualifying Examination

(in brief)

PART I.

Botany.
Classification; Recognition of Specific Plants; Physical Characteristics; Anatomical Structure; Physiology, Reproduction; Physical Effects of Light and Gravity.

Chemistry.
Chemical Principles; Non-Metals and their Compounds; Characters and Classification of Metals; Formation of Oxides and Salts; Carbon and its Oxides; Hydrocarbons, Acids, Alcohols; Aldehydes, Esters; Benzene and Pharmaceutical Homologues; Knowledge of Estimation of Carbon; Hydrogen, Nitrogen; Simple Chemical Problems.

Practical Chemistry.
Analysis of not more than two Metals and two Acid Radicals; Identification and knowledge of Medicinal Organic Compounds; Volumetric Analysis.

Physics (*Present Syllabus*).
Conservation of Energy; Gravitation, Balance, Pressures; Diffusion, Vapour Densities; Thermometer, Barometer; Specific Gravity.

In January, 1922.
Mass, Force, Energy, Work; Forms of Matter; Temperature and Pressures; Light: reflection and refraction: Correction of Vision; Magnets: static and current electricity; Primary and Secondary Cells.

PART II.

Materia Medica.
Pharmacopœial Drugs and others specified; Recognition, Classification; Sources, Structure, Chemical and Physical Characteristics; Active Principles.

Pharmacy.
Laboratory Methods and Appliances; Preparation and Production of Galenicals; Knowledge of Assay; Dispensing and Prescription Reading and Translation; Pharmacopœial Volumetric Estimations and Impurities (*comes into force January 1922*).

Poisons Law.
Knowledge of Schedules, Conditions and Precautions of Sale.

pressure of aqueous vapour; the barometer, air-pump, and siphon; the law of Boyle; temperature; thermometers; the law of Charles; the law of gaseous diffusion; V. Meyer's method of determining vapour densities.

To determine the specific gravity of liquids and solids, and to be familiar with the general construction and use of the thermometer and barometer.

New *Physics* syllabus to come into operation 1922:

(*a*) Units, mass, balance, force, energy, work; levers and pulleys; gravity, forms of matter, hydrostatics, pneumatics. (*b*) Temperature and thermal changes. (*c*) Light, reflection and refraction, photometry, mirrors, lenses, errors of vision and correction. (*d*) Magnets, static electricity, currents, primary and secondary cells, chemial and thermal effects, Ohm's law.

This subject will show the greatest change. Sixty hours is the specified period for physics, but under the present syllabus it is difficult to see how that number can be occupied. For the new student it becomes a subject of some magnitude, and again one must deplore the exclusion of mathematical knowledge. The instructions say "Candidates will be required to possess an elementary non-mathematical knowledge." The syllabus covers a big field, and if mathematics were made compulsory it would be an examination in itself, so that it can readily be understood it was thought necessary not to over-do the subject; hence the expression "non-mathematical." However, a real understanding of physics and physical problems must of necessity include some mathematical knowledge, or we are bound to have a repetition in this subject of the failures we note in chemistry. Here again we have an essentially practical subject, and candidates will be expected to show not only their knowledge, but also be able to explain the methods. The field is extensive, and sixty hours will be none too long for gaining a practical knowledge; and though it may be said to be only elementary, the extent of the field may prove the undoing of the candidate. As the subject is to be treated practically it will tend to eliminate the dryness and help to make physics more fascinating.

The First Day.—The above subjects include the first day's examination. Candidates must secure a pass in all three subjects; there is no question of aggregation. If a candidate passes in two subjects and fails in one, he or she may be referred in that one subject only, but failure in two means taking the three subjects again. In any case, no candidate can proceed to Part 2 until a complete pass has been secured in each subject in Part 1.

Part 2.

Materia Medica.

To recognise specimens of crude drugs mentioned in the British Pharmacopœia or in the annexed list; to be acquainted with their botanical, zoological, and geographical sources, commercial varieties, the natural orders to which they belong, and the mode of collection and preparation for the market; to indicate the morphological nature of such as are organised, and the mode of formation of such as are unorganised; to describe them correctly, and to point out diagnostic characters either chemical or physical, the latter as far as they can be ascertained by the use of a lens. To name the chief active constituents of official drugs, to know the proportion present in good samples of the more important of them, and to possess a practical knowledge of any pharmacopœial tests or processes of assay applied to crude drugs or their official products.

Acori Calami Rhizoma
Alkannæ Radix
Althææ Radix
Amomi Melegnetæ Semina
Areceæ Semina
Arnicæ Rhizoma
Bryoniæ Radix
Cacao Semina
Calendulæ Flores
Cambogia
Canellæ Cortex
Cantharis
Cassiæ Cortex
Castoreum
Cetraria islandica
Chondrus crispus
Chrysanthemi cinerariæfolii Flores
Cimicifugæ Rhizoma
Cinchonæ Calisayæ Cortex
Cocæ Folia
Cocculus Indicus
Conii Fructus
Convallariæ Flores
Crocus
Cumini Fructus
Cydoniæ Semina
Elaterium
Elemi
Erythrophlei Cortex
Eucalypti Folia
Euphorbiæ pilulifera Herba
Euphorbium
Fœni-græci Semina
Fucus vesiculosus
Galbanum
Guarana
Guttapercha
Hellebori nigri Rhizoma
Hordeum
Hyoscyami Semina
Ignatii Semina
Inulæ Radix
Iridis Rhizoma
Lacca
Lactucarium
Lauri Fructus
Lupulus
Lycopodium
Manna
Mastiche
Maticæ Folia
Moschus
Mylabris
Olibanum
Papaveris Capsulæ
Physostigmatis Semina
Pilocarpi microphylli Folia
Pimenta
Piper longum
Piper nigrum
Pix Burgundica
Quercus Cortex
Rhamni Frangulæ Cortex
Sabinæ Cacumina
Sandaraca
Sanguinariæ Rhizoma
Sanguis Draconis
Sarsæ Radix
Scammonium
Sinapis Albæ Semina
Sinapis Nigræ Semina
Stramonii Semina
Sumbul Radix
Tonco Semina
Ulmi fulvæ Cortex
Vanillæ Fructus
Veratri albi Rhizoma

This subject is unchanged and needs very little comment. There were fourteen referred in the subject at the July examination, and the marvel is that any should come down. It is essentially a test of one's faculty for observation, as all the knowledge required can be associated with a clearly defined object. There is undoubtedly an opening for better specimens of drugs in some quarters, but the subject almost wholly depends upon the student's industry, as no teacher can teach him anything but the method of observation and the points to observe. The faculty must be self-cultivated.

Pharmacy.

I. *Pharmacy* (*General*).—(*a*) Operations requiring the use of heat. Evaporation, with particular reference to the preparation of extracts; special characters and modes of preparing the various classes of extracts; influence of surface, temperature, and pressure upon the rate of evaporation; water, steam and sand baths; distillation, ordinary, fractional, steam, and destructive, distinctive characters and objects of each; official preparations illustrating the various kinds of distillation, apparatus employed, the retort and receiver, still and worm, Liebig's condenser, principles on which they are constructed and used. Sublimation; its objects and applications in pharmacy; official products of sublimation, calcination, and fusion. Desiccation; temperature best suited for drying particular drugs, loss in drying vegetable drugs, forms of drying ovens, principles on which they are constructed and used. (*b*) Disintegration of solid substances; cutting, bruising, and pulverisation, apparatus employed, principles indicating which is to be adopted in particular instances; methods for controlling the degree of comminution, sieves and sifting, trituration, levigation, elutriation, granulation, including methods for producing certain chemicals as fine powders, small crystals, scales, etc. Solution: its nature, solvent power of various menstrua, influences of (*a*) temperature; (*b*) state of division of the substance to be dissolved; (*c*) time; (*d*) position of the substance in the menstruum; lixiviation, infusion, digestion, and decoction; maceration, percolation and displacement, principles on which the successful performance of these processes depends; form and materials for percolators and other vessels employed. Filtration, objects and methods, filtering media, means of expediting filtration; dialysis, its application in pharmacy, construction and use of the dialyser. Expression; methods of obtaining the juices from plants; recovery of the residual liquids from tincture mares, etc., screw, hydraulic and other presses. The principles involved in the dispensing of medicines, particularly with reference to the best excipients and methods for forming pill masses, the preparation and nature of emulsions, the most suitable emulsifying agents, and the best means of suspending insoluble substances in liquids.

The candidate is also required to show a general knowledge of the processes, and understand the principles of the processes by which official galenical preparations are made, and a knowledge of the proportion of active ingredient or crude material in such as contain aconite, antimony, arsenic, belladonna, cantharidin, chloral hydrate, chloroform, caustic potash, colchicum, digitalis, ergot, iodine, iodoform, ipecacuanha, lead, mercury, nux vomica, opium, phenol, phosphorus, squill, stramonium, strophanthus, and official alkaloids and alkaloidal salts.

II. *Practical Pharmacy and Dispensing.*—The conduct of such operations of the British Pharmacopœia, or such parts of them as may be practicable, involved in the processes for preparing collodions, confections, decoctions, dilute acids, extracts (solid and liquid), glycerins, infusions, juices, liniments, lotions, mixtures, ointments, pill masses, plasters, powders (simple and compound), solutions, spirits, suppositories, syrups, tinctures, vinegars, waters, and wines.

To weigh, measure, and compound medicines; to write the directions in concise language in a neat and distinct hand; to finish and properly direct each package.

III. *Latin and Prescription Reading.*—The candidate will be required to read without abbreviation autograph prescriptions, translate them into English, understand the grammatical construction of the Latin, and render a literal as well as an appropriate translation of the directions for

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use. To detect errors, discover unusual doses, and have a general knowledge of Posology. To calculate percentages and other quantities occurring in prescriptions; also to render in good Latin ordinary prescriptions written in English.

This subject, apart from dispensing, promises to be the most important on the second day of the examination. It is divided into two portions : (*a*) General; (*b*) Practical pharmacy and dispensing. In general knowledge the subject-matter is the same, but in practical pharmacy after October 1921 there is included the items taken from chemistry. There is, in addition, added to section (*a*) : "To possess a general knowledge of the adulterations and contaminations which may occur in the elements and inorganic compounds included in the British Pharmacopœia."

(*b*) *Practical Pharmacy and Dispensing.*—On the latter there is little to be said, but under the former the candidate may, and undoubtedly will, be required to perform certain operations which he might have been called upon to perform in chemistry, but which were too widely extended to have justice done to them in the short time devoted to the practical examination. They are :

(*a*) Pharmacopœial volumetric determinations.
(*b*) To detect impurities in pharmacopœial chemicals.
(*c*) Pharmacopœial assay work.

The postponement of the extension of the examination in practical pharmacy until 1922 was largely due to the practical difficulties over laboratory accommodation and the large number of ex-Service candidates. This is only a question of time, and those students now entering pharmacy should arrange their training, as the extension outlined will become operative by the time they are ready to enter for the examination.

Latin and *Prescription-reading* are unaltered.

In addition, the new student will have to face this extension : To conduct operations of the B.P. and perform volumetric estimations therein described. To detect impurities in B.P. compounds. To determine alkaloidal content of standardised galenicals.

Poison Law.

(*a*) To enumerate the poisons contained in the Schedule to the Poisons and Pharmacy Act, 1908, viz. : Poisons within Part I. and Part II. of the Schedule. (*b*) To describe minutely the conditions required upon the keeping, selling, and dispensing of poisons, both in Part I. and Part II. of the Schedule; and to write the proper entry required, according to Schedule F of the Pharmacy Act, 1868, for the sale of a poison coming within Part I. of the Poison Schedule. (*c*) To state the conditions imposed on the sale of scheduled poisons by wholesale and for export, and upon the sale of a scheduled poison when forming an ingredient in a medicine dispensed. (*d*) To state the conditions applicable to the sale of poisonous substances. (*e*) To explain the conditions imposed on the sale of arsenic by the Arsenic Act.

The syllabus of this part, dealing with poison law, is not altered, but the title is inclusive, and the Dangerous Drugs Act will come under the heading without any further notice from the Council of the Society. In the July examination two candidates were referred in this subject. It seems strange but true that students are a bit shaky as to what schedule any specific poison should be placed in. The only complete list of poisons available is that published in the *Chemist and Druggist Diary.*

The Major Examination.

This examination must be taken by those who require the qualification of pharmaceutical chemist. For many years the examination commonly called the Major has been under a cloud. Several public institutions require it for their chief officer, but, generally speaking, the average man or woman takes it because of the knowledge that there is a higher standard than the Qualifying examination, and without it they would scarcely be happy. Clearly, the Major is one of temperament. The subject-matter has not been changed for many years and the syllabus is thoroughly out of date, but it enables a man to call himself a pharmaceutical chemist and leaves him there. The Qualifying examination is undergoing radical changes, and as the revision of the whole syllabus is due within the next year or two, it is only natural to expect something to happen to the Major qualification. A resolution of the Council urged consideration of the examination in relation to a University degree, but so far nothing has transpired, and the Preliminary examination defects would be in the way of University recognition. The report of the Ministry of Health and its proposition for considering the ancillary services of Public Health have served to bring this examination into greater prominence. The School Committee of the Pharmaceutical Society and the Ministry of Health, together with certain experts co-opted from outside the Council, put forward tentative proposals for modernising the examination, and incidentally showed a willingness to provide a syllabus for training in the performance of the duties, other than medical, in the report of the Ministry of Health. The situation arises owing to there being no qualification in the public services except where individual institutions give recognition to that of the Pharmaceutical Society. The present Major examination is held twice a year, in April and July, both in London and Edinburgh. The fee is three guineas, and candidates must be qualified chemists and druggists. The date of entry is the 15th of the preceding month. The examination lasts three days and includes chemistry, physics, materia medica, and pharmaceutics and botany. The syllabus is in reality an extension of the Qualifying one and is best undertaken as a continuation of studies.

Subjects of Examination.

The proposition adopted by the Council for dealing with the Major qualification may be stated briefly, though it cannot come into operation within the present academic year. It is as follows :

Compulsory Subjects.—Chemistry, Materia Medica, to be re-named Pharmacognosy.

Optional Subjects.—Botany and Physics.

Additional Optional Subjects.—Physics in relation to Medicine, Practical Physiological Chemistry, Microbiology.

The candidate is allowed to take three additional optional subjects in place of botany and physics.

A compulsory curriculum would be required.

The examination should be divided, Part I., Materia medica and one of the optional subjects; Part II., Chemistry and one or two optional subjects, as the case may be, not taken in Part I.

These changes are still in the air and cannot come into being save by alterations in the by-laws. There is no immediate prospect of such development, since the whole of the Qualifying examination subjects will have to be co-ordinated with whatever object is in view in the development of the pharmaceutical chemist's qualification.

Summary of Examination Fees.

Apart from the fees for collegiate courses the following are payable by pharmacy students :

Registration as student, 2*l.* 2*s.*
Part I. of Qualifying examination, 6*l.* 6*s.*
Re-examination in case of failure, 3*l.* 3*s.*
Part II., 6*l.* 6*s.*
Re-examination fee, 3*l.* 3*s.*
Candidates registered before December 31, 1919, may enter for the whole examination at one time. Fee 10*l.* 10*s.*
Major examination, 3*l.* 3*s.*

Dispenserships.

Official positions as dispensers or pharmacists are open to qualified chemists in the principal hospitals and dispensaries of the United Kingdom, the tendency being to replace unqualified dispensers by registered persons. There are also dispenserships under Boards of Guardians, the Metropolitan Asylums Board, and the Prison Commissioners. Naval hospitals employ pharmacists for dispensing and store-keeping. In the Royal Army Medical Corps a scheme was put forward in January 1919 (*C. & D.*, 1919, p. 73) by which pharmacists may attain the rank of staff sergeant.

Schools of Pharmacy.

A change in the regulations for examinations of the Pharmaceutical Society, to which we referred last year, is the gradual enforcement of a definite curriculum in the pharmacy and at institutions where the subjects are taught in a systematic manner. These institutions are required to reach a certain standard in teaching and equipment, and to ascertain whether this is attained they are inspected by Major E. S. Peck, on behalf of the Pharmaceutical Society. Such establishments are then "approved." Ex-Service men who receive grants from the Government are also required as one of the conditions of the grant to attend an "approved" institution for the course of study. It was stated last year that a list of "approved" schools would be given in the syllabus, but this has not been done in the recent edition. As the matter is a most important one for those students to whom the curriculum is compulsory, we have endeavoured to supply the need for such a list. It will be recognised that the list is capable of extension and that schools will be added during the year when the requirements of the Society are satisfied.

Schools Approved for Part I.

Birkbeck College.
Blackburn Municipal Technical School.
Bournemouth Municipal College.
Bradford Technical College.
Halifax Municipal Technical College.
Harris Institute, Preston.
Huddersfield Technical School.
Leeds Central Technical School.
Sheffield University.
Southampton University College.
Sunderland Technical College.
West Ham Municipal Technical Institute.
Wiggeston Grammar School, Leicester.

Schools Approved for Parts I. and II.

London.

Battersea Polytechnic.
London College of Pharmacy.
School of Pharmacy of the Pharmaceutical Society.
South of England College of Pharmacy.
South-Western Polytechnic Institute, Chelsea.
Westminster College of Pharmacy.

Provinces.

Bath and West of England School of Pharmacy.
Birmingham Technical School.
Brighton Municipal Technical School.
Cardiff Technical College.
Exeter University College.
Leeds School of Pharmacy.
Leicester Municipal Technical School.
Liverpool School of Pharmacy.
Manchester College of Pharmacy.
Manchester University.
Nottingham University College.
Portsmouth Municipal College.
Rutherford College, Newcastle-on-Tyne.
Swansea and West Wales Technical College.

Scotland.

Robert Gordon's College, Aberdeen.
Dundee Technical College.
Heriot-Watt College, Edinburgh.
Royal Dispensary School of Pharmacy, Edinburgh.
Glasgow Royal Technical College.

The schools of pharmacy are many of them already full up with students, so that it may be necessary to make inquiries in several directions before vacancies are found. This condition is, however, a temporary one owing to the large number of ex-Service men who are taking the Qualifying examination before returning to the pharmacy or dispensary. Students who are not under the obligation to take a curriculum do nevertheless usually attend a course at one of the educational institutions that cater for the needs of pharmacy students. These students have the choice of any of the foregoing schools—approved or otherwise—subject to the limitation that there are not many vacancies in approved schools. The vagaries of the present syllabus for the Qualifying examination make it necessary to obtain expert assistance in studying for the examination.

ENGLAND AND WALES.

LONDON.

The School of Pharmacy,
17 *Bloomsbury Square, W.C.* 1.

Staff: *Chemistry and Physics*—Lecturer: Mr. C. E. Corfield, F.I.C., Ph.C.; Assistant Lecturer: Miss Ella Caird, Ph.C. Demonstrators: Mr. G. R. Boyes, Mr. C. J. Eastland, Miss Woodward, Mr. B. W. Melhuish, Mr. K. E. N. Williams. *Pharmaceutics and Botany*—Professor Henry G. Greenish, F.I.C., F.L.S., Ph.C. (Dean); Assistant-lecturers: Mr. T. E. Wallis, B.Sc., Ph.C., Miss C. E. Pearson, and Miss A. H. Saunders; Dean's Assistant: Miss E. M. Bristowe.

The session commences in October, and the course for the Qualifying examination lasts until June 1921. Fee for Minor course 31*l.* 10*s.*, for Major course 21*l.* No more students can be accepted for the forthcoming term, all benches having been allocated.

Battersea Polytechnic,
Battersea Park Road, S.W. 11.

Head of Chemical Department: Mr. J. Wilson, M.Sc., F.I.C. Lecturers in Pharmacy, Materia Medica, and Botany: Mr. R. E. Griffiths, B.Sc., F.I.C.

The next session (September to July) begins on September 21; evening classes on September 27. Complete day courses have been arranged in chemistry, physics and botany, pharmacy and dispensing for the Qualifying examination and for the Apothecaries' Hall examination. Fees, day course 15*l.* 15*s.* per session. Evening courses in drug assay, pharmacy and dispensing, pharmaceutical botany, materia medica, on Tuesday, Wednesday, and Thursday evenings, 7.15 P.M. to 9.45 P.M., fees 7*l.* per period each week per session.

London College of Chemistry, Pharmacy and Botany,
with which is incorporated the South London School of Pharmacy (Muter's),
361 *Clapham Road, London, S.W.* 9.

Principals: Mr. Henry Wootton, B.Sc., and Mr. C. W. Gosling, Ph.C. Staff: Five lecturers holding B.Sc. or Ph.C. diplomas. Six qualified demonstrators.

Independent courses extending over periods of nine, six, and three months are held for the Qualifying examination. Fee, 10*l.* 10*s.* per term. Separate classes are held for the Apothecaries' Hall examination for dispensers. This is stated to be the largest school of pharmacy in the country. A series of text-books is published for the use of students.

Misses M. E. Buchanan, D. Maughan, and M. M. A. Morgan,
Gordon Hall, Gordon Square, London, W.C. 1,

receive a few registered student apprentices for one session's training in all pharmaceutical subjects, to be followed by business training as required by the new regulations. A ten months' course for the examination of the Society of Apothecaries is also available from October to July. The staff consists of the ladies mentioned above, who are all pharmaceutical chemists.

City of London College,
White Street and Ropemaker Street, Moorfields, E.C. 2.

Instruction in chemistry for the Qualifying and Major examinations of the Pharmaceutical Society is obtainable. The session begins on September 27. For particulars apply to Mr. David Savage, secretary.

Elt's College,
Ballard's Lane, North Finchley, London, N. 12.

Principal: Mr. E. E. Elt, B.Sc.

Courses of instruction are provided in the college laboratories. Postal tuition, which may commence on any date, for the Apothecaries' Hall, Preliminary, and Qualifying examinations is a feature of the college work. Full particulars from the secretary.

C. A. Scurr,

40 Courthope Road, Hampstead, London, N.W. 3.

A special revision course for the Qualifying examination will be held in October. Particulars from Mr. Scurr, chemist and druggist, F.M.S.C., F.I.C., at the above address.

South of England College of Pharmacy,

186 Clapham Road, London, S.W. 9.

Principal: Mr. H. Lucas, Ph.C., F.C.S., assisted by a fully qualified staff.

A course of tuition for the Qualifying examination, extending for a period of six months, will commence on October 14, fee 21*l*. Hours of attendance, 9 A.M. to 5 P.M. daily, except Saturday 9 A.M. to 12 noon. Evening classes will also be resumed on October 18, and hours of attendance will be 6.30 P.M. to 9 P.M. on Mondays, Wednesdays, and Thursdays. The "Major" course is an evening one, extending from October 18 to July, fee 9*l*. 9*s*.

South-Western Polytechnic Institute,

Manresa Road, Chelsea, London, S.W. 3.

Principal, Mr. S. Skinner, M.A.; Head of the Chemical Department: Mr. J. B. Coleman, F.I.C.; and eleven other teachers.

Courses (day and evening) are available for the Qualifying, Major, and Apothecaries' Hall examinations. The head of the Chemical Department will advise students as to the suitable courses of study, also for post-graduate students. Full particulars may be obtained from the Secretary of the Institute.

West Ham Municipal Technical Institute.

Principal: Mr. T. C. Baillie, M.A., D.Sc.

An evening course is provided in pharmacy, materia medica, and chemistry, commencing September 22. Lecturer: Mr. Wm. Hurlstone, Ph.C. The classes meet as follows: *Pharmacy and Materia Medica*, Mondays and Tuesdays, 7 P.M. to 9.15 P.M. *Chemistry*, Thursdays, 7 P.M. to 9.15 P.M.

Westminster College of Chemistry, Pharmacy, and Botany,

190 Clapham Road, London, S.W. 9.

Principals: Mr. G. S. V. Wills, Ph.C., and Mr. P. H. Woodnoth.

Staff: Messrs. W. A. Knight, Ph.C. (Pereira Medallist), J. G. Everett, Ph.C. (Council Medallist), T. E. Dunstan, chemist and druggist. Tuition for the Major and Apothecaries' Hall examination is discontinued for the present. For the Qualifying examination the arrangement for the next sessions are as follows: Two separate courses of nine and six months commence on October 13 and 14, but there are no vacancies in the nine months' course. A six months' course will commence in April 1921 for the October examination 1921; fee, 21*l*. A new Physics Laboratory has recently been added to the School, and complete facilities are now given for individual practical work.

ENGLAND AND WALES.

PROVINCES.

Bath and West of England College of Chemistry and Pharmacy.

Cleveland Place, Bath.

Principal: Mr. David J. Williams, Ph.C., F.C.S. (Silver Medallist). Staff: Mr. P. J. Thompson, chemist and druggist, F.C.S. (Silver Medallist); W. Cooper, Ph.C. (Silver and Bronze Medallist, Fairchild Prizeman); Miss D. J. Liggins, chemist and druggist (Silver Medallist); Miss A. Francis, and Mr. A. W. Millard. Revision courses commenced on August 11, fee, 7*l*. 7*s*.; and a three months' revision course on October 6, fee 10*l*. 10*s*. The full nine months' course also commences on October 6; fee, 31*l*. 10*s*. Correspondence courses are arranged for the Pharmaceutical examinations and also for Apothecaries' Hall candidates.

Blackburn Technical School.

Full-time day courses in chemistry, physics, and botany, for the Qualifying examination, will be held in addition to special classes (junior and senior) for pharmaceutical apprentices on three half-days per week in these subjects. The syllabus for the Qualifying examination will be covered in this course also. Fee for the session, 10*s*. The junior class will be held on Mondays and Wednesdays, 9.30 A.M. to 12.30 P.M., and on Thursdays, 2 P.M. to 5 P.M. Senior: Tuesdays, 9.30 A.M. to 12.30 P.M., and Thursdays, 9.30 A.M. to 12.30 P.M. and 2 P.M. to 5 P.M.

Birmingham and Midland College of Chemistry, Pharmacy, and Botany,

45 Newhall Street, Birmingham.

Principal: Mr. G. L. Scott, Ph.C.

The next term for the Qualifying examination, beginning on October 6, will consist of two courses, an elementary (six or nine months) and an advanced (three months). Half-day and evening classes have also been arranged, the former on Wednesdays and Thursdays (2 P.M. to 9 P.M.), and the latter on Mondays and Thursdays (7 P.M. to 9 P.M.), and on Wednesdays (6 P.M. to 9 P.M.). Fees (for full-time course): three months, 9*l*. 9*s*.; six months, 17*l*. 17*s*.; nine months, 24*l*. 3*s*.; for part-time classes, any class, 2*l*. 10*s*. for three months. A full-time class for the Major examination will be formed, fee 7*l*. 7*s*. for three months. Part-time classes are by arrangement. Classes for students entering for the Apothecaries' Hall assistants' examination are held on alternate mornings and afternoons. Fee for a nine months' course is 12*l*. 12*s*.

Birmingham Municipal Technical School,

Suffolk Street, Birmingham.

Principal: Mr. W. E. Sumpner, D.Sc.

The sessional fee in Pharmaceutical chemistry (Wednesday afternoon class) for chemists' apprentices varies from 7*s*. 6*d*. to 12*s*. 6*d*., according to the stage of subject taken. A full-time day course, for the Qualifying and Major examinations, instituted at the instigation of the Birmingham Pharmaceutical Association, commences on October 4, fee (nine months) 30*l*. There are at present no vacancies. Secretary: Mr. George Mellor.

Bradford Technical College.

Principal: Professor H. Richardson, M.Sc.

Courses are available for students preparing for Part I. of the Qualifying examination, and application has been made for recognition of the college in regard to Part II.

Brighton Municipal Technical College.

Principal: W. Mansergh Varley, M.A., D.Sc., Ph.D. Chemistry: M. C. Clutterbuck, B.Sc., Ph.D., and W. W. Reeves, B.Sc. Physics: W. H. Bilson, B.Sc. Botany: H. Edmonds, B.Sc., and Mrs. A. S. Bacon, B.Sc. Pharmacy: H. B. Mackie, Ph.C., and Miss D. Olliver.

Full-day courses for Qualifying examination (old and new regulations) of the Pharmaceutical Society, and for the Major examination. Next course commences on October 1. Fee for nine months' course for whole examination under the old regulation, or for Parts I. or II. under the new regulations, 24*l*. But this fee is reduced to 18*l*. per session (6*l*. 6*s*. per term) to *bonâ-fide* residents in Brighton and to the sons and daughters of ratepayers of the county borough. There is accommodation for forty-eight students, and an Advisory Committee of local pharmacists has been appointed.

Bristol Merchant Venturers' Technical College.

Evening classes will be held in chemistry, light and heat, magnetism and electricity, and botany, which will be found useful by candidates for the examinations of the Pharmaceutical Society or the Society of Apothecaries. The session commences on September 27. Fee, 12*s*. 6*d*. each class, except botany, 10*s*.

Bristol, University of.

Pharmaceutical students may attend lectures in chemistry, botany, physics, and materia medica. They may also take laboratory work so far as accommodation permits. Lectures on materia medica and pharmacy are delivered during the summer term by Mr. O. C. M. Davis, M.D., D.Sc. (Lond.), F.I.C.

Derby Technical College.

Principal: Mr. F. W. Shurlock, B.A., B.Sc. Teacher of Pharmacy: Mr. S. Taylor, Ph.C.

This college teaches pharmacy and materia medica on Wednesdays, fee 1*l.* 1*s.* per term. Facilities are available in both Qualifying and Major subjects. Information can be obtained from the secretary.

Exeter University College.

(*School of Pharmacy.*)

Principal: Mr. H. J. W. Hetherington, M.A. Chemistry: Professor W. H. Lewis, M.A., F.I.C., and Mr. W. A. T. Nash, B.A., A.I.C. Physics: Mr. F. Newman, B.Sc., A.R.C.Sc. Botany: Mr. J. L. Sager, M.A., Mr. A. H. Ware, Ph.C. Pharmaceutics: Mr. A. H. Ware, Ph.C.

The courses include preparation for the Qualifying examination of the Pharmaceutical Society and for the Apothecaries' Assistants' examination. The fee for the former is 31*l.* 10*s.*, and for the latter 15*l.* 15*s.* There are no vacancies for 1920-21, but entries can be received for session 1921-22.

Huddersfield Technical College.

Full day (fee, 10*l.* 10*s.* per session) and evening courses (fee, 15*s.* per session) in all the subjects for the Qualifying examination of the Pharmaceutical Society are held.

Hull Municipal Technical College.

Chemistry Department: Mr. Geo. F. Johnson, B.Sc., F.I.C.; Mr. W. S. Cooper, B.Sc., A.I.C.; Mr. A. S. Blatchford, M.Sc., A.I.C.; Mr. L. S. Selle, chemist and druggist.

Classes in inorganic and organic chemistry, physics, botany, Latin and prescription-reading, pharmacy, and materia medica are conducted.

Leeds Central Technical School.

Principal: Mr. R. E. Barnett, B.Sc.

Evening classes are held over a period of three sessions preparatory for the Qualifying examination, in addition to a part-time day course in chemistry, physics, and botany, for which the fee is 12*l.* 12*s.* for nine months. A preparatory course for the Preliminary examination is available, fee 1*l.* 1*s.* A nine months' course for the assistants' qualification of the Society of Apothecaries is conducted in co-operation with the Leeds Public Dispensary. The pharmaceutical prospectus can be had from the Principal, post free, on application.

Leeds College of Pharmacy,

Clarendon Road.

Principal: Mr. F. Pilkington Sargeant, Ph.C., F.C.S., Staff: Messrs. M. E. Wood, A. W. Lupton, N. Payne, and C. Eastwood, chemists and druggists.

A full-time course for the Qualifying examination begins on October 12, for which the fee is 31*l.* 10*s.*, but there are no vacancies. Revision course starts on August 23 until September 26. Fee: 7*l.* 7*s.*

Leicester Municipal Technical School.

Principal: Mr. J. H. Hawthorn, M.A.; Chemistry: Mr. J. B. Johnson, B.Sc., Mr. H. Crofts, M.Sc., A.I.C. Pharmacy: Messrs. F. W. Thompson, Ph.C., S. S. Squires, Ph.C., E. L. Burrows, chemist and druggist.

A nine months' course is conducted for the Qualifying examination in pharmacy, the fee being 31*l.* 10*s.*

Liverpool School of Pharmacy,

2 *Blackburne Place.*

Principal: Mr. H. Humphreys Jones, A.I.C., Ph.C., F.C.S., assisted by Messrs. P. H. Jones, F.I.C., R. H. Rawson, chemist and druggist, Misses E. Ridgeway and C. H. Rimmer, chemists and druggists, and Miss D. Jones.

The autumn session commences October 12; part-time evening classes for Parts I. and II. of the Qualifying examination are also arranged for Tuesdays and Wednesdays from 6 P.M. to 9.30 P.M.

Manchester College of Pharmacy,

292 *Oxford Road.*

Principals: Mr. Harry Brindle, Ph.C., F.C.S., Mr. Charles Turner, Ph.C., F.C.S., and Mr. F. Brindle, chemist and druggist.

New terms for the Qualifying examination commence in October. Fee for nine months' course, 30 guineas. This school is stated to be one of the oldest in Great Britain.

Manchester College of Technology,

Sackville Street.

Principal: Mr. J. C. M. Garnett, C.B.E., M.A.

Courses for pharmaceutical students are held on Wednesdays (afternoon and evening), and prepare for the Manchester Scholarship. The session begins on October 4.

Manchester University.

The Qualifying and Major courses in the Pharmaceutical Department commence in October and continue for a period of six to nine months, the composition-fees being 22*l.* 1*s.* and 31*l.* 10*s.* respectively. Part-time (afternoon) and evening courses, extending over a period of two years, have also been arranged; fee 14*l.* 14*s.*, subject to revision. Degree courses in pharmacy are available here, and the equipment is unrivalled by any other pharmaceutical institute. Mr. James Grier, M.Sc., Ph.C., will be assisted by Miss Ivy Roberts, B.Sc., Ph.C. (Pereira Medallist), and Miss J. Duncan, chemist and druggist, is the pharmacy instructor.

Newport (Mon.) Technical Institute.

Principal: Mr. G. R. Bennett, B.Sc.; Chemistry: Mr. A. Brennan, B.Sc.; Physics: Mr. H. Rowlands, B.Sc.

Courses of instruction in subjects required for the Pharmaceutical examinations are obtainable, and there are classes in dispensing conducted by a local pharmacist.

Nottingham University College.

Principal: Mr. W. H. Heaton, M.A.; Chemistry: Professor Kipping, F.R.S., and six assistants. Botany: Professor Carr, M.A.; Physics: Professor Barton, F.R.S.; Pharmacy: Capt. Jinks and two assistants.

Evening courses requiring from four to six hours' attendance per week, and extending from three to four years, preparatory for the Pharmaceutical examinations, cost about 1*l.* per session. There will also be a full-time day course (nine months) for the Qualifying and Major examinations, fee 32*l.* A special course for Apothecaries' Hall diploma for women is given. Fee 14*l.* 14*s.*

Portsmouth Municipal College.

Principal: Mr. Oliver Freeman, B.Sc.; Head of Chemical Department: Mr. W. H. Watson, M.Sc.; Lecturer on Pharmacy: Mr. F. Hemming, chemist and druggist.

There are full-time day courses for the Qualifying examination of the Pharmaceutical Society and part-time courses for assistants to apothecaries. There are also separate courses for evening students. The fees for day students are 4*l.* 4*s.* per term, or 10*l.* 10*s.* per session. For evening classes the fees are 7*s.* 6*d.* for the course (September to May), with an extra charge for the summer term.

Sheffield Secondary Central School.

Evening classes in chemistry, botany, materia medica, pharmacy, and dispensing are held. Mr. E. Preston, Ph.C., 105 Barker's Pool, is the lecturer in the three last-named subjects, to whom inquiries should be addressed.

Sheffield University.

Classes in the subjects for Part I. of the Qualifying examination are available. Local students should apply to Mr. Herbert Antcliffe, Union Dispensary, West Bar.

Southampton University College.

Complete day courses are arranged for the Qualifying examination.

Swansea Technical College.

Courses on pharmaceutical subjects are provided.

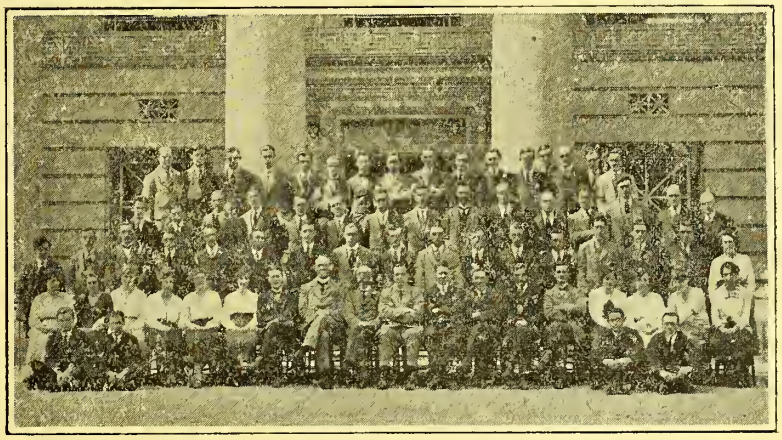
Salford Royal Technical Institute.

Principal: Mr. B. Prentice, D.Sc.

Day and evening classes suited for pharmaceutical students are held in chemistry and physics. Day-course fee: 1*l.* 17*s.* 6*d.*, or 5*l.* 5*s.* per session of three terms. Evening: 7*s.* 6*d.* to 15*s.*

Welsh College of Pharmacy,
Cardiff.

Principal: Mr. T. Lewis, Ph.C. Lecturer in Pharmacy: Mr. F. C. Highfield, Ph.C.; Chemistry: Mr. E. A. Rudge, B.Sc., Mr. H. Aldred, M.Sc.; Physics: Mr. T. Jones, B.Sc.; Botany: Miss L. Andrews, M.Sc.



Students of the Welsh School of Pharmacy, Cardiff.

This college, which is a branch of the Cardiff Technical College, is supported by the South Wales and Monmouthshire Federation of Local Associations, and provides a nine months' course of training in pharmaceutical subjects. Fees, 15*l.* 15*s.* All the benches for next session, which will commence on October 5, have been allotted.

A course for Major students will shortly be started, and a part-time course for the Qualifying examination of two afternoons per week commences on October 8. Fee, 3*l.* 3*s.* A nine months' course for students desirous of taking the Apothecaries' Hall certificate will also commence in October. Mr. Hagon (member of the Pharmaceutical Council) is secretary. Medals for the sessional examination are awarded by the Federation.

Wigan Technical College.

Principal: Mr. S. C. Laws, M.A., M.Sc. Head of Chemistry Department: Mr. E. B. Naylor, M.Sc., F.I.C. Lecturers: Mr. F. Slater, O.B.E., B.Sc., A.I.C., Mr. J. Bradshaw, M.Sc., A.I.C. Lecturer in Pharmaceutics: Mr. T. H. Winstanley, F.C.S. Mathematics: Mr. H. Sutcliffe, B.Sc., Mr. M. M. Das, B.Sc. Physics: Mr. F. Unwin, M.Sc., Mr. F. Morrell, B.Sc. Botany: Miss H. Taberner, B.Sc.

The next session begins on September 13. Fees: Part-time course, 1*l.* 1*s.*; full time, 10*l.* 10*s.* The college calendar gives further particulars.

SCOTLAND.

Robert Gordon's Technical College, Aberdeen.

Chemistry: Professor W. Maitland, D.Sc., and Mr. R. Craven, B.Sc., Miss J. D. Lindsay, B.Sc.; Pharmacy: Mr. E. Gower Bryant, Ph.C., F.C.S., Mr. D. S. Rattray, Ph.C.

The day course of study for the Qualifying examination will open on October 5 and continue until June 1921. Fee: October to June, 19*l.* 19*s.*; April to June, 7*l.* 7*s.* The evening course occupies four sessions. Fee: First year 2*l.*; second year, 2*l.*; third year, 2*l.*; fourth year, 1*l.* 10*s.* Students may then join a revision (day) course at a reduced fee of 5*l.* 5*s.* Major course, 15*l.* 15*s.*

The enrolment for the 1920-21 session is complete, and enrolments for 1921-22 are already nearly equal to the school's capacity.

Dundee Technical College.
(*School of Pharmacy.*)

Heads of Departments: *Pharmacy*—Mr. D. McCall, B.Sc., chemist and druggist. *Chemistry*—Mr. C. W. Cochrane, B.Sc. Assistant: Mr. J. R. G. Kirkcaldy, chemist and druggist. Students are prepared for the Qualifying and Major examinations of the Pharmaceutical Society. Nine months' day course commences October 1. Fee for each term of three months 7*l.* 7*s.* Apprentices who have satisfactorily worked on two or three nights per week during three years as students will be accepted for the day course, joining the classes in January. Fee for evening classes, first and second years 20*s.*, third year 30*s.*

Heriot-Watt College,
Chambers Street, Edinburgh.

Principal: A. P. Laurie, M.A., D.Sc., F.R.S.E. Professor of Chemistry: A. Archibald Boon, D.Sc., B.A., F.I.C., F.R.S.E. Lecturers: *Chemistry*—R. H. Hopkins, B.Sc., F.I.C. (Bio-Chemistry); James Sandilands, A.I.C., Arthur C. Francis, A.I.C., W. H. Craven, B.Sc., A.I.C. *Physics*—William Watson, M.A., B.Sc. (Head of Department), and T. G. Malpas. *Botany*—Andrew Howison, M.A., B.Sc. *Pharmaceutics*—John C. Henderson, Ph.C., and demonstrators in each subject. Complete courses are provided in all the subjects required for the examinations (Qualifying and Major) of the Pharmaceutical Society of Great Britain. In general, during the autumn, spring, and summer terms of each session, the work will be as follows: Chemistry and physics during the forenoons, and botany and pharmaceutics during the afternoons. The fee for each of the courses is 31*l.* 10*s.*, *plus* 5*s.* matriculation fee. Full particulars may be had on application to Professor Boon.

Royal Dispensary and School of Pharmacy of Edinburgh,
21 *West Richmond Street, Edinburgh.*

Principal: Mr. William Duncan, Ph.C., F.C.S., assisted by Mr. W. G. Mackenzie, Ph.C., and Mr. J. Turnbull, Ph.C.

The next session begins on October 7. Fees 31*l.* 10*s.*; per term, 10*l.* 10*s.* Evening classes are held on Mondays, Tuesdays, and Thursdays, commencing October 4, at 7.30 P.M., fees per term 4*l.* 4*s.*

Glasgow School of Pharmacy,

26 *India Street.*

Principal: Mr. Malcolm M. Irvine, Ph.C., assisted by Mr. Jas. Tulloch, M.A., Mr. J. O. Chisholm, chemist and druggist, Mr. H. W. Thomas, chemist and druggist, and Miss Crawford.

This school recently removed to new premises at the above address, and has accommodation for over a hundred students. An advisory committee of local pharmacists assists in the organisation. A nine months' course begins in October, for the Qualifying examination of the Pharmaceutical Society. An evening course extends over two sessions.

Glasgow Royal Technical College.

(*School of Pharmacy.*)

Superintendent and lecturer in botany and materia medica: Mr. David Ellis, D.Sc., Ph.D., F.R.S.E. Lecturer in pharmacy and material medica: Mr. R. S. Glennie, chemist and druggist, Inter. B.Sc.(Lond.). The Professors of Chemistry and of Physics undertake the work in their respective subjects. At present only fifty-four ex-soldiers are being trained under the allocation scheme. Fees: Grants from Government will be given each year for the first three years, after this period the school will take its place along with the other departments with similar fees.

Books for Students.

Each college principal has a preference for certain text-books which students are required to use. Some even have their own series specially printed. The following list contains particulars of the most popular text-books for pharmaceutical students. The prices given have all been checked for us by the publishers.

Botany.

"Elementary Botany," Edmonds (Longmans), 4*s.*

"Text-book of Botany," Amy Johnson (Allman), 8*s.* 6*d.*

"Structural Botany": Part 1, "Flowering Plants"; Part 2, "Flowerless Plants," D. H. Scott (Black), each 4*s.* 6*d.*

"Botanists' Pocket Book," Hayward, revised by G. C. Druce (Bell), 5*s.*

"Practical Botany for Beginners," Bower and Gwynne-Vaughan (Macmillan), 4*s.*

Theoretical Chemistry.

"Elementary Inorganic Chemistry," James Walker (Bell), 5*s.* (suitable for beginners).

"Text-book of Inorganic Chemistry," Senter (Methuen), 8*s.* 6*d.*

"Modern Inorganic Chemistry," Mellor (Longmans), 12*s.* 6*d.*

"Text-book of Inorganic Chemistry," Newth (Longmans), 9*s.*

"Theoretical Organic Chemistry," Cohen (Macmillan), 7*s.*

Practical Chemistry.

"Short Manual of Analytical Chemistry," Muter (Baillière), 8*s.* 6*d.*

"Qualitative Chemical Analysis, Organic and Inorganic," F. Mollwo Perkin (Longmans), 9*s.*

"Volumetric Analysis," Hampshire (Churchill), 5*s.*

Pharmaceutical Latin and Prescription-reading.

"Latin Grammar of Pharmacy," Joseph Ince (Baillière), 6*s.*

"Medical and Pharmaceutical Latin for Students of Pharmacy and Medicine," R. R. Bennett (Churchill), 7*s.* 6*d.*

Materia Medica.

"Materia Medica," Southall, revised by E. W. Mann (Churchill), 12*s.* 6*d.*

"Text-book of Materia Medica," Greenish (Churchill). In the press.

Pharmacy.

"British Pharmacopœia" (Constable), 10*s.* 6*d.*

"Practical Pharmacy," Lucas (Churchill). In the press.

"Essentials of Pharmacy," Wootton (London College), 5*s.*

"Art of Dispensing," MacEwan (*C. & D.* Office), 8*s.*

Ireland.

There is a striking difference between the practice of pharmacy in Great Britain and Ireland, especially in regard to the dispensing of prescriptions and the sale of poisons. Until the Pharmacy Act (Ireland), 1875, the dispensing of medical prescriptions was restricted to apothecaries and medical practitioners. The principal effect of the 1875 Act was to authorise those registered under it—pharmaceutical chemists—to do this dispensing also; further it restricted the sale of poisons to such persons and others who previously had the right. By an amending Act of 1890 the sale of poisons by retail was extended to a class of non-dispensers—registered druggists. Those persons who were in business when the first Act passed are designated chemists and druggists. A qualification for assistants to pharmaceutical chemists was also created by the 1890 Act, these being entitled to transact the business in the temporary absence of their employers. The examination and registration body is the Pharmaceutical Society of Ireland, 67 Lower Mount Street, Dublin, whose Secretary and Registrar is Mr. A. T. Ferrall.

Preliminary Examination.

The Pharmaceutical Society of Ireland conducts its own Preliminary examination, but accepts in lieu thereof the certificates of the following examining bodies: The Matriculation or Preliminary examination of the University of Dublin, Public Entrance examination (large certificate); the National University of Ireland, Matriculation examination; the Royal Colleges of Physicians and Surgeons, Ireland, Preliminary examination; the Intermediate Education Board for Ireland, Junior, Middle, or Senior Grade examinations in the following subjects: English, Latin, arithmetic, algebra, geometry, and Greek, or a modern language; or such other examination as shall be deemed by the Pharmaceutical Council as equivalent thereto, *all the subjects having been passed at one time.* Provided that every certificate accepted shall include Latin as one of its subjects. Any such examination to be passed *prior to the statutory service at pharmacy*, unless such service has been commenced before January 1, 1907.

The subjects of the Preliminary examination are:

Latin.—Translate and parse sentences from Cæsar's "Commentaries (De Bello Gallico)," first book, or Virgil's "Æneid," first book. Translate an easy English sentence into Latin.

English.—English grammar, including orthography and parsing. Write on a subject selected by the examiner, and write from dictation.

Arithmetic.—First four rules, simple proportion, vulgar fractions and decimals. Describe the British weights and measures and the metric system.

Algebra.—As far as simple equations, inclusive.

Geometry.—Including the first book of Euclid. Also one of the following subjects: French, German, or any modern language.

It is held at 67 Lower Mount Street, Dublin, on the first Thursdays and following days in January, April, July, and October, at 10 A.M. A fee of 3*l.* 3*s.* must be lodged with the Bank of Ireland to the credit of the Society, and the receipt forwarded to the Registrar (Mr. A. T. Ferrall), 67 Lower Mount Street, Dublin, with birth certificate and the name of the optional subject, at least fourteen clear days before the commencement of the examination. The re-examination fee is 2*l.* 2*s.* A copy of the marks awarded in the examination to any candidate is supplied for 2*s.* 6*d.*

Pharmaceutical Licence.

The conditions to be fulfilled before entering upon the Pharmaceutical Licence examination are:

(*a*) After preliminary registration the person must serve four years as apprentice or assistant with, and in the sole employment of, a pharmaceutical chemist, or a chemist and druggist of Great Britain, or an apothecary, or a firm of legally qualified pharmaceutical chemists, chemists and druggists of Great Britain, or apothecaries, *in an open shop*, and the candidate must spend the business day with his employer. (Provision is made for service with more than

employer, and, for those who have served four years n a chemist and druggist or registered druggist in land, two years' further service with a pharmaceutical mist or an apothecary suffices.)

) Attend three-months' courses of lectures in theoretical mistry and in botany and materia medica, and a three-nths' course of practical chemistry (after the lectures in ory) at one or other of the following approved institu-ns:

chool of the Pharmaceutical Society of Ireland.
chool of the Pharmaceutical Society of Great Britain.
Central Technical Institute, Waterford.
Municipal Technical School, Ballymena.
Municipal Technical School, Londonderry.
Municipal Technical School, Drogheda.
Municipal Technical Institute, Limerick.
Central Technical Institute, Limerick.
Cecilia Street School of Medicine, Dublin.
City of Dublin Technical Schools.
Government School of Science, South Kensington.
Queen's University, Belfast.
Queen's University, Cork.
Queen's University, Galway.
Royal College of Science for Ireland, Dublin.
Royal College of Surgeons in Ireland, Dublin.
School of Physic, Trinity College, Dublin.
The Anderson College of Medicine, Glasgow.
Royal Academic Institution, Belfast.
The Municipal Technical Institute, Belfast.
Mr. Templeton's School of ientific Method and Chemis-, Belfast.
Crawford Municipal Tech-al Institute, Cork.

Some of these are approved all the subjects, others for oretical chemistry only.

(c) The person must be enty-one years of age.

(d) Declarations and certifi-tes of the foregoing must be lged with the Registrar en the candidate applies for try to the Licence examina-n.

The examination com-ences on the second Wed-sdays of January, April, ly, and October, at 10 A.M., d is held in the Pharma-utical Society's House, ublin. Candidates must ve notice of intention to tend to the Registrar four-en clear days before the te of the examination, and is must be accompanied by receipt of having paid the e (10*l.* 10*s.*) into the Bank Ireland to the credit of e Society. The necessary rms should be procured ell in advance. The re-examination fee is 4*l.* 4*s.* The xamination, which is written, practical and oral, is in e following subjects:

Botany: Recognition of the principal indigenous plants sed in medicine, their natural orders, and the characters their several parts.

Materia Medica: Recognition of B.P. drugs; their haracters, active principles, sources, official preparations, nd adulterations.

Chemistry: Elementary laws of chemistry and physics, ncluding equations. Recognition of B.P. chemicals, de-cription of the processes by which they are obtained, quali-ative analysis (including B.P. tests) and volumetric analysis, nd a practical examination in these subjects. (The Coun-il recommends Corbyn and Stewart's "Physics and hemistry.")

Practical Pharmacy: Translation of Latin prescriptions, letection of dangerous doses, and compounding and dis-ensing. Processes of making and recognition of B.P non-hemical preparations, and an intimate knowledge of the ale of Poisons (Ireland) Act, 1870.

Assistants to Pharmaceutical Chemists.

This examination is also held quarterly, being on the Saturdays following the examination for the Pharmaceutical Licence. This permits candidates "referred" at the latter examination to enter for the assistants' examination on payment of a fee of 1*l.* 1*s.* New candidates pay in addition a registration-fee of 1*l.* 1*s.* The re-examination fee is 1*l.* 1*s.* The conditions are similar to those of the Licence examination, but the candidate need not be twenty-one years of age, nor have taken a special course of instruction. The subjects are prescription-reading and translation, including the detection of unusual doses, practical dispensing, materia medica, pharmacy, including recognition of non-chemical pharmacopœial preparations and a knowledge of the proportions of active ingredients in these, and the laws relating to the sale of poisons in Ireland.

Registered Druggists.

The subjects of this examination are as prescribed by the 1890 Act—viz.:

English orthography and composition.
Arithmetic and the weights and measures of the British Pharmacopœia.
The appearance and properties of the various drugs and chemicals in general use.
The Sale of Poisons (Ireland) Act.

The examination is open to anyone who has served as an assistant or apprentice for not less than four years to a pharmaceutical chemist, chemist and druggist, registered druggist, or licentiate apothecary keeping open shop, and is held in Dublin and Belfast (if twelve candidates apply) on the second Tuesdays of January, April, July, and October. Applications for admission, accompanied by the necessary declarations of service and a receipt for 4*l.* 4*s.* (examination-fee 2*l.* 2*s.*, and registration-fee 2*l.* 2*s.*) placed to the credit of the Society in the Bank of Ireland, must be made to the Registrar at least fourteen days before the dates of the examinations. The re-examination fee is 2*l.* 2*s.*

Copies of examination papers are published in the Society's "Calendar" (4*s.* 6*d.* post free, from the Registrar, or are supplied separately at 1*s.* 7½*d.* each year, post free).

Membership of the Pharmaceutical Society is open to pharmaceutical chemists, chemists and druggists, and registered druggists, the annual fee being 1*l.* 11*s.* 6*d.*

Irish Pharmacy Qualifications

(in brief).

L. P. S. I.

1. Pass Recognised Preliminary before apprenticeship.
2. Four years' apprenticeship in a pharmacy.
3. Courses, in an approved institution, of three months in (*a*) Theoretical Chemistry, (*b*) Botany and Materia Medica, (*c*) Practical Chemistry.
4. Pass Pharmaceutical Licence Examination after 21.

R. D.

1. Serve four years as assistant or apprentice.
2. Pass Registered Druggist Examination.

Pharmaceutical Assistants.

As for L. P. S. I., but need not be 21, nor have taken courses of instruction.

Educational Institutions.

Pharmaceutical Society's Schools,
67 Lower Mount Street, Dublin.

Director: Chemistry School, Professor H. Norminton, M.Sc. Botany and Materia Medica School, Mr. W. H. Ashmore, Ph.C., and Mr. P. O'Connor, A.R.C.Sci.I. There are three sessions, commencing on the first day in October, January, and April. The fees for courses to meet the Society's regulations are: Theoretical chemistry (three months), 1*l.* 11*s.* 6*d.*; practical chemistry (six months), 6*l.* 6*s.*; practice course (three months), past students, 2*l.* 2*s.*; students of other schools, 3*l.* 3*s.*; botany and materia medica (three months), 2*l.* 2*s.* The theoretical chemistry class is held on Tuesday and Thursday evenings, and the practical chemistry class on Monday, Wednesday, and Friday evenings. A day class for practical chemistry (three months) begins in April, fee 6*l.* 6*s.*; also a day practice course. The botany and materia medica classes are held on Tuesday and Thursday evenings with

occasional Saturday demonstrations. The chemistry (day) course is recognised by the Royal College of Physicians and Surgeons in Ireland. Book prizes are offered for competition each session in each class.

Belfast Municipal Technical Institute.

The Pharmaceutical Section of the Pure and Applied Chemistry Department provides full courses in evening classes, also in pharmacy. Fees, 6*s.* to 12*s.* 6*d.* per subject per session. The session commences on September 13.

School of Scientific Method and Chemistry,

The Gables, Botanic Avenue, Belfast.

Principal: Mr. S. Templeton, Assoc. R.C.S., F.I.C.

Day and evening courses, to meet the requirements of the Pharmaceutical Society's Licence examination, begin on September 1. The fee for a full course, which may be taken in one session (seven months) or spread over a longer period, if desired, is 12*l.* 12*s.*, and the fees per subject are: Theoretical chemistry, 2*l.* 2*s.*; practical chemistry, 6*l.* 6*s.*; botany, 2*l.* 2*s.*; materia medica, 2*l.* 2*s.*; pharmacy, 2*l.* 2*s.* A full-time course is also conducted, fee 10*l.* 10*s.* per quarter.

Scholarships and Prizes.

There are several scholarships and prizes offered to students of pharmacy, and the successful competitors in many cases find that their initial good fortune may have an important bearing upon their future careers. Even unsuccessful candidates benefit, for competition invariably induces greater efficiency which manifests itself in gratifying manner when the student proceeds to qualify.

The Pharmaceutical Society of Ireland.—The Council awards annually a gold and a silver medal to pharmaceutical chemists who have during the year passed the Licence examination and obtained the following standard of marks: For the gold medal, not less than 240 marks out of 300, and sixty-five in each of the three subjects; for the silver medal, 230 marks out of 300, and sixty in each of the three subjects.

The Chemists' and Druggists' Society of Ireland.—The Haslett Gold Medal, which was presented by the late Sir James Haslett, M.P., is awarded annually to the student who takes the highest place at the Registered Druggists' examination.

"Corner for Students" Prizes.—The Chemist and Druggist has provided annually for over fifty years exercises in qualitative chemical analyses, for which two book prizes are awarded monthly. A tournament is conducted throughout the winter session, the marks each month being registered, and the three competitors who receive the highest number are awarded parchment certificates and book prizes to the value of 2*l.* 2*s.*, 1*l.* 1*s.*, and 10*s.* 6*d.*

Manchester Pharmaceutical Association Scholarship is open to student-associates of the Pharmaceutical Society who have been engaged for not less than three years in the pharmacy of a pharmaceutical chemist or a chemist and druggist in Lancashire, Cheshire, or the High Peak Parliamentary Division of Derbyshire. It has an annual value of about 34*l.*

Herbarium Prizes.—The Pharmaceutical Society of Great Britain offers annually to its student-associates a silver medal, a bronze medal, and certificates of honour for a herbarium of British plants collected in any part of the United Kingdom, the Channel Islands, or the Isle of Man between January 1 in one year and July 1 in the year following. Particulars can be obtained from Sir William Glyn-Jones, 17 Bloomsbury Square, London, W.C.

Jacob Bell Scholarships.—Two scholarships are offered annually by the Pharmaceutical Society of Great Britain as a memorial of Jacob Bell, its originator. The award comprises free education at the Society's School and 25*l.* in cash, with books to the value of 2*l.* 10*s.* The scholarships are open only to student-associates of the Society not less than twenty or more than twenty-two years of age who have been engaged for not less than three years in the pharmacy (*i.e.*, open shop) of a pharmaceutical chemist or a chemist and druggist. The examination is held on the third Tuesday in June at London, Edinburgh, and Manchester. Application for admission must be made on or before June 1 to Sir William Glyn-Jones, 17 Bloomsbury Square, London, W.C.

The Petrie Trust Bursary, of the annual value of 16*l.* to 20*l.*, is awarded each year to a student-associate of the Society who has completed three years' apprenticeship in the city or county of Aberdeen. Particulars may be obtained from the Secretary of the Aberdeen Pharmaceutical Association.

The Pharmaceutical Society of Great Britain offers annually three medals for competition by pharmaceutical chemists who have passed the Major examination during the year. The competitive examination is in materia medica, botany, and chemistry, and is held shortly after the Major examination in April. The Registrar informs each person entitled to compete. The first prize is the Pereira Silver Medal and 5*l.* worth of books; second, the Society's Silver Medal; and third, the Society's Bronze Medal. The Society also has in its gift the following scholarships:

The Ransom Research Fellowship, valued about 100*l.*, was founded in 1917 to promote the investigation of crude drugs, and is awarded to a pharmaceutical chemist, who must for twelve months work under the direction of the Council in the Research Laboratory or the Museums of the Society.

The Redwood Scholarship, of the value of about 60*l.* in cash, awarded every second year to a pharmaceutical chemist to pursue work in the Society's research laboratory.

The Burroughs Scholarship of about 50*l.* every second year for a similar purpose.

The Charles James Hewlett Memorial Exhibition is of the value of about 15*l.*, and is awarded on the recommendation of the Professors of the Pharmaceutical Society's School to the student (other than a Bell scholar) who most distinguishes himself during attendance at the elementary course.

Apothecaries' Assistants.

If apothecaries refuse to compound or unfaithfully compound physicians' prescriptions, by Section V. of the Apothecaries Act 1815 they are liable to a heavy penalty. To help the apothecaries in this work of dispensing Section XVII. enacted that an examination should be instituted for the purpose of granting certificates to persons "to act as an assistant to any apothecary." The conditions of entrance to the examinations are as follows:

(*a*) The candidate (male or female) must be at least eighteen years of age. (*b*) A certificate of sound general education must be produced. (*c*) A certificate signed by an apothecary's assistant holding a public appointment, a registered chemist and druggist, or a registered medical practitioner, showing that special instruction in practical pharmacy has been taken for nine months, must be produced. (*d*) The candidate must pass an examination in (1) compounding and dispensing medicines, (2) chemistry, (3) materia medica and pharmacy, and (4) prescription-reading.

The examination takes place in January, April, July and October, and is entirely practical and oral. The examination fee is 5*l.* 5*s.*, re-examination fee 3*l.* 3*s.*—the candidate not being required to be examined in subjects already passed.

Particulars can be obtained from Mr. Frank Haydon, L.R.C.P., Secretary to the Court of Examiners, the Apothecaries' Hall, Blackfriars, London, E.C.

Similar powers to examine and grant certificates to assistants are possessed by the Apothecaries' Hall of Ireland, 40 St. Mary Street, Dublin. Examinations are held on the first Friday of each month except August. The subjects of the examination are pharmaceutical and general chemistry, materia medica, pharmacy (practical and theoretical), antidotes to poisons, and the imperial and metric systems of weights and measures. Candidates must be eighteen years of age, and must submit certificates of (*a*) age and (*b*) service of at least one year at pharmacy under the superintendence of a medical practitioner or a pharmaceutical chemist. Notice of intention to attend must be given on the recognised form (obtainable from the Registrar) at least seven days prior to the examination.

Medicine.

Of late years the medical profession seems to have ught a tide "which, taken at the flood, leads on to for- ne." The National Insurance Act set a high standard remuneration for work that was previously little sought ter; and, during and since the war, medical men have tered the Ministry of Health and other Government epartments, with consequent opportunities of shaping blic policy. In the Proprietary Medicines Bill may be en a tangible result of the growing power of the medical an in politics—a power with which are usually asso- ated higher remuneration and increased social prestige. only remains, so far as can be foreseen, for the profes- on to consolidate its position and regulate the flow of trants.

Candidates for the profession are required to possess, the outset, a general education of the standard needed r matriculation in arts or science at a British university, d, after registration as medical students, to take a urse of study and training, extending on the average to e years, at a recognised institution. Examinations are ld at intervals during the curriculum, so that the sub- cts to be mastered are disposed of a few at a time, thus ssening the strain on the udents. There are two pes of medical qualifica- ons. One is the degrees stowed by the universities: e other is the diplomas be- owed by such bodies as the oyal Colleges of Physicians d Surgeons. The regula- on of conditions for admis- on to the Medical Register entrusted by law to the eneral Medical Council, hich, by Sections 18 and 20 f the Medical Act, 1858, is npowered to require in- rmation from colleges and ther bodies as to courses of udy and examinations, and report any deficiencies (or pparent deficiencies) to the rivy Council.

Preliminary Examinations.

The education committee f the General Medical ouncil issues a list of xamining bodies the ex- minations of which in eneral education fulfil the onditions laid down by the Council as to admission as a edical student (see "Registration as Medical Students"). hese examinations include (1) The final arts or science egree examination of any university of the United King- om or of the British Dominions; (2) the corresponding atriculation examination of any university in Great ritain or of the Queen's University, Belfast; (3) a number f school and other examinations. Any examination recog- ised in the last-named group must include: (1) English grammar, composition, literature). Candidates should e prepared to answer questions in history and geography rising out of the subject-matter of the examination. 2) Mathematics (arithmetic, algebra—including easy uadratic equations, geometry—including the subject- atter of Euclid, books i, ii, iii, and simple deductions). 3) Languages (grammar, translation into English from nprescribed books, translation from English). A Joint atriculation Board (Secretary, 24 Dover Street, Man- hester), governs the Matriculation examinations of the niversities of Manchester, Liverpool, Leeds, Birming- am, and Sheffield. The College of Preceptors, Bloomsbury quare, London, W.C. 1, holds in March and September f every year a Professional Preliminary examination for ertificates recognised by the General Medical Council and other bodies. It should be borne in mind that the subjects which are compulsory and those which are optional differ to some extent in the requirements of the various universities and other qualifying bodies; consequently, the candidate must either matriculate at the University at which he or she intends to study or ascertain that the Preliminary-examination certificate held is one that will be accepted.

Registration as Medical Students.

The way of entrance to the medical profession is laid down in "Regulations of the General Medical Council in Regard to the Registration of Medical and Dental Students" (Constable & Co., Ltd., 10 Orange Street, London, W.C. 2, 1s.). The applicant must (1) have attained the age of sixteen years, (2) have passed a recognised preliminary examination, and (3) produce evidence of having commenced medical study at an approved institution. The Registrars to whom, according to the division of the United Kingdom in which the student is training, application must be made for registration are:

The Registrar of the General Medical Council, 44 Hallam Street, Portland Place, London, W. 1.

The Registrar of the Branch Council for Scotland, 20 Queen Street, Edinburgh.

The Registrar of the Branch Council for Ireland, 35 Dawson Street, Dublin.

The General Medical Council enjoins that in every course of professional study, training and examination the following subjects shall be comprised:

(1) *Physics*, including the elementary mechanics of solids and fluids and the rudiments of heat, light, and electricity; (2) *Chemistry*, including the principles of the science, and the details which bear upon the study of medicine; (3) *Elementary Biology*; (4) *Anatomy*; (5) *Physiology*; (6) *Materia Medica and Pharmacy*; (7) *Pathology*; (8) *Pharmacology and Therapeutics*; (9) *Medicine*, including medical anatomy and clinical medicine; (10) *Surgery*, including surgical anatomy and clinical surgery; (11) *Midwifery*, including diseases peculiar to women and to new-born children; (12) Theory and practice of *Vaccination*; (13) *Forensic Medicine*; (14) *Hygiene*; (15) *Mental Diseases*; (16) *Anæsthetics*.

A few bodies allow medical studies to be commenced at approved teaching institutions other than medical schools, and this principle is extended to graduates in Arts or Science at approved universities. No general exemption of this kind is given to registered chemists and druggists except as regards training in practical pharmacy. The preliminary examination must have been of the standard given in the regulations, but the colleges and universities consider applications for exemption from any part of the medical examinations when such subjects as chemistry and biology have been taken at recognised institutions. Each examining body issues regulations as to the studies required, and the schools of medicine arrange their courses in conformance with such requirements.

University Degrees.

In the following paragraphs we indicate concisely the conditions framed by the Universities of the places named for degrees in medicine and surgery (M.B., Ch.B., or the equivalent degrees in medicine and surgery):

Aberdeen.—The degrees are conferred together, and cannot be taken separately. The curriculum extends over

To qualify as a

MEDICAL PRACTITIONER

(1) **Pass a recognised Preliminary Examination.**

(2) **Produce evidence of having commenced study at an approved institution, and be registered as a student by one of the Registrars of the General Medical Council.**

(3) **During a five years' curriculum, pass, at proper intervals, the necessary examinations—three or more.**

a period of not less than five years, two years of which must be passed at Aberdeen. The remaining three years may be spent in the study of the requisite subjects at any university of the United Kingdom or at certain other universities and schools recognised by the University. The fee for the two degrees is 23*l.* 2*s.*, payable in four instalments. Bursaries, scholarships, and fellowships are obtainable. Regulations may be seen in the calendar of the University, or may be obtained from the Secretary, Mr. H. J. Butchart, B.L.

Belfast.—Three academic years must be passed at the University. The examination-fees for the four examinations, as given in the University calendar, amount to 7*l.* 7*s.* The Registrar is Professor T. Sinclair, M.D.

Birmingham.—The course extends over five years, and there are five examinations. Dean of the Faculty of Medicine, Mr. W. F. Haslam; Registrar of the University, Mr. J. H. Costain.

Bristol.—There are three examinations, the total fees for qualifying amounting to 18*l.* 18*s.* Registrar, Mr. J. Rafter, M.A.

Cambridge.—Students who have not graduated in Arts are required to pass the Previous examination or its equivalent before proceeding to the three examinations for the M.B. degree. The respective fees for these three examinations are 4*l.* 4*s.*, 4*l.* 4*s.*, and 9*l.* 9*s.* Five years is the period of study prescribed, including two years at a general hospital. A thesis must be composed by each candidate, and must be publicly read (or such portion of it as the Regius Professor shall direct) by the author. The Registrary is Mr. J. N. Keynes, Sc.D.

Dublin.—Candidates for the licences in medicine, surgery, and obstetric science must have completed two years in Arts and five years in medical studies. The fees for the licences amount to 11*l.* Registrar, Mr. A. C. O'Sullivan, M.B., B.Ch., Trinity College, Dublin.

Durham.—There are four examinations for the M.B. degree, and the course of study extends over five years. Full information may be obtained from the Secretary of Examinations, Durham College of Medicine.

Edinburgh.—The course extends over five years (fifteen terms), clinical study at a recognised hospital for nine months of the last year being compulsory. Candidates must also attend for three years at a recognised hospital accommodating not fewer than eighty patients, and for not less than two years at the University. There are four examinations, the fees, as given in the University calendar, amounting to 23*l.* 2*s.* Dean of the Faculty of Medicine, Professor J. Lorrain Smith, M.D.; Secretary of the University, Mr. W. Wilson, M.A.

Glasgow.—There are four examinations. The period of study prescribed is five years, two of which must be spent at the University; nine months of the final year must be passed in clinical study at a recognised hospital or dispensary. The fee is 23*l.* 2*s.* Several bursaries and prizes are open to competition. The Adviser of Studies is Professor T. H. Bryce, University of Glasgow.

Ireland.—The National University of Ireland confers the M.B., B.Ch., and B.A.O. degrees (simultaneously) after passing four examinations during a minimum period of five years' study. Particulars may be obtained from the Registrar of any of the constituent colleges (Cork, Dublin, Galway).

Leeds.—There are three examinations, and the course of study extends over ten terms (five years). Attendance at an approved hospital for at least two and a half years is obligatory. The examination-fees amount to 15*l.* Dean of the Faculty of Medicine, Professor J. K. Jamieson, M.B., C.M.; Secretary of the University, Mr. A. E. Wheeler.

Liverpool.—The curriculum extends over five years, two of which must be passed in the University. There are three examinations, with a fee of 5*l.* each. Dean of the Faculty, Professor J. S. Macdonald, M.A.

London.—The normal course of study extends over five and a half years. There are three examinations, certain concessions being granted to external students who have been engaged in war service. A large number of institutions in the United Kingdom and the Colonies is recognised for teaching and giving certificates, and various scholarships are offered. Internal and external students should apply respectively to the Academic Registrar and the External Registrar, University of London, South Kensington, S.W. 7.

Manchester.—Four examinations, extending over five years, must be passed. Attendance at hospital should begin in the third year. The fees for the four examinations and the degrees amount to 25*l.* 5*s.* Full information is obtainable from Professor Robert B. Wild, Dean of the Medical Faculty, the University, Manchester.

Oxford.—The regulations stipulate that candidates must hold the B.A. degree as a pre-requisite. Two examinations are held for the degree of B.M.; they are conducted partly in writing and partly *viva voce*, and a portion of each (except those in forensic medicine and public health and in materia medica and pharmacology) is practical. The Board of the Faculty of Medicine determines the interval that must elapse between matriculation and examination, certain concessions being made "during the present emergency period." The Registrar of the University is Mr. C. Leudesdorf, M.A., Pembroke College.

St. Andrews.—A leaflet containing the present regulations for graduation in medicine may be obtained on application to the Secretary of the University.

Sheffield.—There are four examinations for the M.B. Ch.B. degrees, the examination-fees (payable in three instalments) amounting (according to the calendar of the University) to 15*l.* Candidates who are referred in the Final examination must produce evidence of having received subsequent instruction satisfactory to the Faculty before entering for re-examination. Dean of the Faculty, Professor J. B. Leathes, M.B.; Registrar of the University, Mr. W. M. Gibbons, M.A.

Wales.—The course of study must extend over six years, and must be taken in one of the constituent colleges. Qualification involves the possession of the science or arts degree of an approved university, as well as passing the necessary examinations. Registrar of the University, Mr. J. M. Angus, M.A., University Registry, Cathays Park, Cardiff.

Medical and Surgical Diplomas.

M.R.C.S. Eng. and L.R.C.P. Lond.

The Royal College of Physicians of London and the Royal College of Surgeons of England (known as "the Conjoint Board") grant a joint diploma (the "Double Qual.") for registration as a general medical practitioner. There are three Professional examinations during the five years' curriculum subsequent to registration as a medical student:

First Professional Examination is in chemistry, physics and elementary biology, and it may be taken, on production of certain certificates, immediately after passing the Preliminary examination. Candidates must adduce evidence of having received instruction in all these subjects. Six months' instruction in these subjects, taken at a recognised institution other than a medical school, will be counted as part of the Professional curriculum if it is taken subsequent to passing the Preliminary examination. Chemistry and physics must be taken together. The fee for the whole examination is 10*l.* 10*s.*

Second Professional Examination is in (1) anatomy and physiology, and (2) materia medica and pharmacology, and both parts may be passed at one time. Evidence must be produced that the candidate has spent twelve months dissecting the whole of the human body, has attended courses of lectures in anatomy, physiology, and has received practical instruction in physiology, histology, pharmacology and practical pharmacy. The fee for the second examination is 10*l.* 10*s.*

Third or Final Examination.—Before admission, the candidate must produce evidence that he has attended the specified portion of study laid down in the curriculum set forth in the official regulations. The subjects are (1) Medicine, including medical anatomy, pathology, therapeutics, forensic medicine, and public health; (2) surgery, including pathology, surgical anatomy, and the use of surgical appliances; (3) midwifery and diseases peculiar to women.

The Final examination cannot be completed before the expiration of five winter and five summer sessions from the date of passing the Preliminary examination. The fee is 21*l.* Special regulations are provided for cases in which

students have passed examinations in certain subjects elsewhere. Synopses of the examinations can be obtained from the Secretary of the Conjoint Board, 8-11 Queen Square, Bloomsbury, London, W.C. 1.

Scottish Triple Qualification.

The Royal Colleges of Physicians and Surgeons of Edinburgh, with the Royal Faculty of Physicians and Surgeons, Glasgow, grant three diplomas ("Triple Qual.") jointly entitling the holder to registration as a general medical practitioner. The four examinations are held in Edinburgh, Glasgow, or both cities. The course of study must occupy not less than five years, and the examination-fees amount to 30*l*. Full particulars may be obtained from Mr. D. L. Eadie, 49 Lauriston Place, Edinburgh, or Mr. W. Hurst, Faculty Hall, 242 St. Vincent Street, Glasgow.

Irish Double Qualification.

The Royal College of Physicians in Ireland and the Royal College of Surgeons grant a registrable diploma after examinations in Dublin by their Conjoint Board. The professional examinations, four in number, bear fees of 15*l*. 15*s*., 10*l*. 10*s*., 9*l*. 9*s*., and 6*l*. 6*s*. respectively. A syllabus may be obtained on application to Mr. Alfred Miller, Royal College of Surgeons, Stephen's Green, Dublin.

London Apothecaries' Diploma.

The Society of Apothecaries of London grants a diploma (L.M.S.S.A.) in medicine, surgery, and midwifery. There are two examinations, Primary and Final, and the course of study extends over five years. The fee for the Primary examination is 5*l*. 5*s*.; the Final examination is taken in two sections, with respective fees of 10*l*. 10*s*. and 5*l*. 5*s*. Application may be made to Mr. Frank Haydon, L.R.C.P. Lond., Secretary, Society of Apothecaries of London, Water Lane, London, E.C. 4.

Dublin Apothecaries' Diploma.

The Apothecaries' Hall of Ireland grants a diploma (L.A.H.) to candidates who pass the requisite examinations. Secretary, Mr. E. F. Hanrahan, M.B., 40 Mary Street.

Medical Schools.

The following are the recognised medical schools in the United Kingdom :

London.

The following medical schools are constituents of the London University :

Charing Cross Hospital Medical College, Chandos Street, W.C. 2.—Dean, Dr. W. J. Fenton; Secretary, Mr. F. Noakes.

Guy's Hospital, London Bridge, S.E. 1.—Clerk of the Hospital, Mr. W. J. Curry.

King's College, Faculty of Science, Medical Division, Strand, W.C. 2.—Students are prepared for the first two medical examinations of the University of London or the first two of the Conjoint Board. The composition-fee (payable in advance) for a three years' course is 105*l*. Dean of the Faculty, Professor W. D. Halliburton, M.D.; Secretary of the College, Mr. S. T. Shovelton, M.A.

King's College Hospital Medical School, Denmark Hill, S.E. 5.—Composition-fee for University of London (medical) course or Conjoint Board course, 210*l*. Several scholarships and prizes are available through examination. Dean, Dr. H. Willoughby Lyle; Secretary, Mr. S. C. Ranner, M.A.

London Hospital Medical College, Turner Street, E. 1.—Entrance-fee, 21*l*.; annual fee, 42*l*. Several scholarships and prizes are open to competition. Dean, Professor W. Wright, D.Sc.; Secretary, Mr. E. J. Burdon.

London (Royal Free Hospital) School of Medicine for Women, Hunter Street, W.C. 1.—Composition-fee (payable in five instalments) for the University of London degrees or the Conjoint Board qualification, 240*l*. Dean, Miss Aldrich-Blake, M.D., M.S. A list of scholarships and other particulars may be obtained from the Warden and Secretary, Miss L. M. Brooks.

Middlesex Hospital, Union Street, W. 1.—There are three (open) entrance scholarships. Dean, Mr. A. E. Webb-Johnson, F.R.C.S.; Secretary, Mr. W. Kewley.

St. Bartholomew's Hospital and College, Smithfield, E.C. 1.—Composition-fee, 213*l*. (or five annual instalments of 50*l*. 8*s*. each). The total value of scholarships and prizes awarded annually is over 900*l*. Dean, Dr. T. W. Shore; Clerk, Mr. T. Hayes.

St. George's Hospital, Hyde Park Corner, S.W. 1.—Annual composition-fee for the first three years, 36*l*. 15*s*.; for the fourth and fifth years, 42*l*. Courses for the first and second Professional examinations are taken at University College or King's College. Acting-Dean, Mr. R. R. James.

St. Mary's Hospital Medical School, Cambridge Place, W. 2.—Composition-fee for the curriculum (time-limit, six years), 200*l*.—if paid in four instalments, 210*l*. Dean, Sir John Broadbent, Bart., M.D.; Secretary, Mr. B. E. Matthews.

St. Thomas's Hospital Medical School, Albert Embankment, S.E. 1.—Dean, Sir Cuthbert Wallace; Secretary, Dr. A. Elliot.

University College, Faculty of Medical Sciences, Gower Street, W.C. 1.—The fees are under consideration. Dean, Professor E. H. Starling, M.D.; Secretary, Mr. W. M. Seton, M.A.

Westminster Hospital Medical School, 12 Caxton Street, S.W. 1.—Entrance-fee, 10*l*. 10*s*.; annual composition-fee, 36*l*. 15*s*. Scholarships and prizes are awarded over a considerable period of the curriculum. Preliminary and intermediate studies are taken at King's College. Dean, Dr. A. S. Woodwark; Secretary, Major J. Burke, D.S.O.

Outside London.

Aberdeen.—*University Faculty of Medicine.*—An inclusive fee of 94*l*. 10*s*. has been established for instruction within the University. The total cost of obtaining the M.B., Ch.B. degrees is estimated at 160*l*., comprising hospital-fees, class-fees, and degree-fee. Clinical study is available at the Royal Infirmary and other local institutions. Bursaries, scholarships, and fellowships to the total annual value of over 1,180*l*. may be held by students of medicine.

Belfast.—*Queen's University of Belfast.*—Students are prepared, during a five years' course, for the degrees of M.B., B.Ch., and B.A.O. The class-fees for the first four years, as given in the University calendar, amount to 77*l*. 14*s*. The fee for clinical instruction is 22*l*. Registrar, Professor T. Sinclair, M.D.

Birmingham.—*University Faculty of Medicine.*—The course extends over five years. As a rule, the first four years must be spent in the University; the fifth year may be taken at any other recognised school or schools. Dean, Mr. W. F. Haslam; Registrar of the University, Mr. J. H. Costain.

Bristol.—*University Faculty of Medicine.*—The inclusive fee for the entire curriculum (apart from hospital practice and clinical instruction) is given in the University calendar as 84*l*., payable in advance, or 94*l*. 10*s*. if paid in instalments. The degree-fee is 2*l*. 2*s*. Dean, Professor E. Fawcett, M.D.; Registrar, Mr. J. Rafter, M.A.

Cambridge.—Apply to the Registrar (Mr. J. N. Keynes, Sc.D.), the Registry of the University, for particulars as to courses of study.

Cardiff.—The *University College of South Wales and Monmouthshire* is a constituent college of the University of Wales. The course of study must extend over five years. Various scholarships are available. Application may be made, by letter, to Professor David Heyburn, M.D., University College, Newport Road.

Cork.—*University College* is a constituent college of the National University of Ireland. Several scholarships are open for competition by students of medicine. Particulars as to fees may be obtained from the Registrar of the College.

Dublin.—*Royal College of Surgeons' Schools of Surgery* (which include the Carmichael and Ledwich Schools) are under the control of the Royal College of Surgeons. The cost of the Triple Qualification, including examination-fees, is given in the syllabus as 160*l*. 13*s*. Copies may be obtained from Mr. Alfred Miller, Registrar, Royal College of Surgeons, Stephen's Green, Dublin.

School of Physic, Trinity College.—The total cost of qualifying, including examination-fees, is given in the

calendar as 149*l.* 17*s.* Registrar, Mr. A. C. O'Sullivan, M.B.

University College, 84-87 Stephen's Green South. A constituent college of the National University of Ireland.

Edinburgh.—*University Faculty of Medicine.*—The fees for each subject range from 1*l.* 1*s.* to 4*l.* 4*s.* for a three months' course. A perpetual ticket for practice at the Royal Infirmary costs 12*l.* in one payment, or 12*l.* 12*s.* if paid in instalments. Several scholarships, bursaries, and prizes are available. Dean, Professor J. Lorrain Smith; Secretary of the University, Mr. W. Wilson, M.A.

School of Medicine of the Royal Colleges.—The staff of lecturers numbers forty-nine, and the courses of study are suited to University and other qualifications. The minimum cost of education for the Triple Qualification is 120*l.*, payable by instalments. Dean, Dr. R. W. Johnstone, 11 Bristo Place, Edinburgh.

Galway.—*University College, Galway.*—A constituent college of the National University of Ireland. Twenty-seven months' attendance at a recognised general hospital, beginning not later than the third year of study, is obligatory. Registrar and Secretary, Rev. J. Hynes.

Glasgow.—*The University Faculty of Medicine, including Queen Margaret College.*—Students are recommended to begin their course (five years) in the summer. The division of studies is similar to that adopted at Edinburgh, and the fees are on the same lines. Dean, Professor Bryce; Registrar of the University, Mr. A. Morrison.

The Anderson College of Medicine, Dumbarton Road, W. Students are prepared for University and other qualifications. The Carnegie Trust pays the fees of students at the College on certain conditions. A copy of the College calendar will be sent on receipt of a postcard addressed to the Secretary of the Medical Faculty at the College.

St. Mungo's College, 86 Castle Street; offices, 97 West Regent Street and 135 Buchanan Street. Secretary, Mr. J. T. Brown.

Leeds.—*University Faculty of Medicine.*—The composition-fee for the first examination in medicine or dentistry is given in the University calendar as 27*l.* 11*s.* For the remaining terms of study the composition-fee is 115*l.* 2*s.* 6*d.*, payable in advance. Dean of the Faculty, Professor J. K. Jamieson; Secretary of the University, Mr. A. E. Wheeler.

Liverpool.—*University Faculty of Medicine.*—The fees for a five years' degree course are estimated in the University Faculty's prospectus at 223*l.* 14*s.* Dean of the Faculty, Professor J. S. Macdonald.

Manchester.—*University Faculty of Medicine.*—The composition-fee for the studies for the M.B., Ch.B. degrees is 105*l.* Several scholarships, exhibitions, etc., are offered to students. Particulars will be found in the calendar of the University, or may be obtained on application from Professor Wild, Dean of the Medical Faculty.

Newcastle-on-Tyne.—*University of Durham College of Medicine*, Northumberland Road.—For particulars of the courses of instruction, apply to Professor Howden, Secretary of the College.

Oxford.—Apply to the Registrar of the University (Mr. C. Leudesdorf, M.A.), Pembroke College, for particulars as to courses of study.

St. Andrews.—*University Faculty of Medicine.*—Dean, Professor Kynoch; Adviser of Studies, Professor Herring.

Sheffield.—*University Faculty of Medicine.*—A five years' course is provided for. The revised composition-fee may be ascertained on application to the Dean, Professor J. B. Leathes, M.B., or the Registrar of the University, Mr. W. M. Gibbons, M.A.

Diplomas in Public Health.—Complete courses of instruction for the various degrees and diplomas in Public Health are now offered by the Department of Hygiene and Public Health at King's College, Strand, London, W.C., recently reorganised under Professor Simpson. Professor Sommerville lectures on hygiene and kindred subjects; Mr. Rhys Charles on the Sale of Food and Drugs Acts; bacteriology and parasitology are taught by Professor Hewlett and Dr. Taylor, and the chemical laboratory work is under Mr. William Partridge.

Dentistry.

Nothing has, so far, been revealed as to the intentions of the Legislature in regard to the recommendations of the Dentists Act Committee (*C. & D.*, 1919, p. 192), which comprised some far-reaching changes. At present, the only legislation affecting the practice of dentistry in the United Kingdom is embodied in the Dentists Act, 1878, which safeguards the word "dentist" and similar titles, and prevents an unregistered person from recovering fees for dental work and advice in a court of law. Without discussing the speculative question whether any Government is likely to attempt to pass an enactment on the lines of the Dentists Act Committee's proposals, it may safely be said that, having regard to the experiences of the recent war, any legislative change that may be made will tend to strengthen the position of the qualified dentist. Further, it is clear that the public demand for expert attention to teeth is growing. Given the aptitude for the mechanical side of the work, the profession is undoubtedly an attractive one.

Dental Training.

The registration of dental students, like that of medical students, is regulated by the General Medical Council, and the procedure is similar. The candidate must (1) be not less than sixteen years of age, (2) have passed a recognised Preliminary examination, and (3) have commenced professional study, by pupilage or otherwise. Candidates for a diploma in dental surgery should produce certificates of having been engaged during four years in professional study, and of having received two years' instruction in mechanical dentistry from a registered practitioner. One year's *bonâ-fide* apprenticeship with a registered dental practitioner, after being registered as a dental student, may be counted as one of the four years of professional study. The necessary two years of instruction in mechanical dentistry, or any part of them, may be taken by the dental student either before or after his registration as a student. Women are not admitted as students to Guy's Hospital Dental School, nor to some of the general hospitals. The L.D.S. of the Royal College of Surgeons of England is, for some reason, more valued than a similar qualification obtained elsewhere. The curriculum of the Royal College of Surgeons of England is as follows:

First Course.—Theoretical and practical chemistry and physics: 180 hours' lectures and practical work in chemistry and 120 hours' lectures and practical work in physics. Pass the *Preliminary Science examination* in chemistry and physics (that for the L.R.C.P. and M.R.C.S. diploma).

Second Course.—Two years' instruction in mechanical dentistry; lectures on dental metallurgy, with a practical course; lectures on dental mechanics, with practical work including the manufacture and adjustment of six dentures and six crowns. Pass the *First Professional examination*—(I.) Mechanical dentistry; (II.) dental metallurgy.

Third Course.—At a medical school: Lectures on anatomy, physiology, with practical physiology; surgery and medicine. Dissections for twelve months. Practice of surgery and clinical lectures on surgery in a hospital for twelve months. At a dental school and hospital: Lectures on dental anatomy and physiology, dental histology, dental surgery, with practical dental surgery; surgery of the mouth, dental bacteriology, dental materia medica, and practical instruction in anæsthetics. Pass the *Second Professional examination.*—(I.) General anatomy, physiology, pathology and surgery; (II.) dental anatomy, physiology, pathology and surgery, and practical dental surgery. Before the final subjects are entered for, the candidate must have completed the four-years' curriculum and be twenty-one years old.

The fee for the diploma is 21*l.* Inquiries should be addressed to the Director of Examinations (Mr. F. G. Hallett), Examination Hall, Queen Square, London, W.C. 1. Similar conditions apply to the qualifications of the following colleges:

Royal College of Surgeons, Edinburgh.—The course of study must occupy at least four years. The subjects which are practically the same as those of the London Royal College of Surgeons, are taken in two examinations. The examination-fees amount to 15*l.* 15*s.* A higher diploma may be obtained not less than a year after being

licensed, the fee being 15*l.* 15*s.* (or 21*l.* for candidates from other colleges). Secretary, Dr. A. Miles.

Royal Faculty of Physicians and Surgeons, Glasgow.—Communications should be addressed to Mr. Walter Hurst, Faculty Hall, 242 St. Vincent Street.

Royal College of Surgeons in Ireland, Stephen's Green, Dublin.—The diploma-fees amount to 21*l.*, payable in instalments. The Registrar will furnish particulars on application.

University Degrees and Diplomas.

Birmingham.—The course includes at least six months in the dental department of a general hospital approved by the University. Registrar of the University, Mr. J. H. Costain.

Bristol.—There are four examinations for the degree of B.D.S., the qualifying-fees, as given in the University calendar, amounting to 18*l.* 18*s.* The degree-fee is 2*l.* 2*s.* Registrar, Mr. J. Rafter, M.A.

Dublin.—Four years must be spent in study after obtaining the B.A. degree. The examination-fee is 5*l.*, and the degree-fee 10*l.* Application for full details should be made to the Registrar of the School of Physic, Trinity College, Dublin.

National University.—The course of study extends over four years. There are four examinations, and candidates must practise mechanical dentistry for two years during the period of study. Registrar of the University, Sir Joseph McGrath, LL.D. The constituent colleges are the University Colleges of Dublin, Cork, and Galway.

Durham.—Four years' professional study and a three-years' pupilage in mechanical dentistry are required before the licence in dental surgery is obtainable. Particulars may be obtained on application to the Secretary of Examinations, Durham College of Medicine.

Leeds.—There are three examinations, in addition to a definitely prescribed course of study. The examination- and degree-fees together amount to 18*l.* Secretary of the University, Mr. A. E. Wheeler.

Liverpool.—There are four examinations for the degree of B.D.S. or for the licence in dental surgery (L.D.S., Liverpool), the fees amounting to 15*l.* Dean of the Medical Faculty, Professor J. S. Macdonald.

London.—The degree of M.S. is conferred in dental surgery. Candidates must have taken the M.B., B.S. degrees of the University. For particulars apply to the Academic Registrar (if an internal student) or to the External Registrar (if an external student), University of London, South Kensington, S.W. 7.

Manchester.—The degrees granted are B.D.S., L.D.S. (Manc.), and M.D.S. The examination-fees for the B.D.S. amount to 13*l.*, payable in four instalments. There are four examinations for this degree, and the curriculum extends over five years. Inquiries regarding examinations should be addressed to the Registrar of the University.

Dental Instruction.

The following are the chief schools in the United Kingdom for instruction in the science and practice of dentistry :

London.

Charing Cross Hospital Medical School, Chandos Street, W.C. 2.—The cost of the curriculum is payable by a composition-fee or in half-yearly instalments. Secretary, Mr. F. Noakes.

Guy's Hospital Dental School, London Bridge, S.E. 1.—The curriculum extends over four years, and there is accommodation for 100 students. Practical training is provided in the adjoining hospital. The revised fees for the course (apart from examination-fees) amount to 372*l.* The course can be extended to six years, so as to comprise diplomas or degrees in medicine, surgery, and dentistry. Particulars may be obtained from Mr. F. B. Bull, L.R.C.P., M.R.C.S., Sub-Dean of the School.

King's College, Strand, W.C. 2.—Composition-fee, 36*l.* 15*s.* per annum, payable in advance. Dean of the Faculty of Medicine, Professor W. D. Halliburton, M.D.

London Hospital Dental School, Whitechapel Road, E. 1. Fees under revision. Dean of the School, Dr. W. Wright; Secretary, Mr. E. J. Burdon.

London (Royal Free Hospital) School of Medicine for Women, Hunter Street, W.C. 1.—Composition-fee, 90*l.* (payable in instalments of 50*l.* and 40*l.*); a reduction of 15*l.* is made in the case of students who have completed courses in chemistry and physics before entering the school. Dean, Miss L. B. Aldrich-Blake, M.D.; Warden and Secretary, Miss L. M. Brooks.

Middlesex Hospital Medical School, Union Street, W. 1.—The training-fees are payable by a composition-fee or in annual instalments. A reduction is made to students who have passed the Preliminary Science examination. Dean, Mr. A. Webb-Johnson, F.R.C.S.; Secretary, Mr. W. Kewley.

National Dental Hospital and College (Dental Department of University College Hospital), Great Portland Street, W. 1.—Fees under revision. Sub-Dean, Mr. A. B. G. Underwood, M.B., L.D.S.

Royal Dental Hospital of London, School of Dental Surgery, Leicester Square, W.C. 2.—The cost of the full course, including examination-fees for the L.D.S. diploma, is estimated at 371*l.* 13*s.* Dean, Mr. H. Stobie.

St. Bartholomew's Hospital (Dental Department), Smithfield, W.C. 1.—Four short courses of demonstrations are given during the school year. Dean of the Medical School, Dr. T. W. Shore.

St. George's Hospital, Hyde Park Corner, S.W. 1.—Two annual composition-fees of 15*l.* 15*s.* are charged for hospital practice and courses of lectures on medicine and surgery. Acting-Dean of the Medical School, Mr. R. R. James.

St. Mary's Hospital, Paddington, W. 2.—A composition-fee of 73*l.* 10*s.* (or 78*l.* 15*s.* if paid in two instalments) is charged for a two years' course. Dean of the Medical School, Sir John Broadbent, Bart., M.D.; Secretary, Mr. B. E. Matthews.

St. Thomas's Hospital, Albert Embankment, S.E. 1.—Fees are paid annually. Secretary, Dr. A. Elliot, M.A.

Westminster Hospital, 12 Caxton Street, S.W. 1.—Fee for general surgical practice and lectures for the R.C.S. dental diploma (payable in advance), 70*l.* (or two payments of 36*l.* each). Secretary of the Medical School, Major J. Burke, D.S.O.

Outside London.

Birmingham.—*University School of Dentistry.*—Registrar of the University, Mr. J. H. Costain.

Dental Hospital, 132 Great Charles Street.

Bristol.—*Dental Department, The University.*—The inclusive fee for the curriculum (apart from hospital practice and clinical instruction) is given in the University calendar as 78*l.* 15*s.* The fee for working in the dental

TO QUALIFY AS A DENTIST

(1) **Pass a recognised Preliminary Examination.**

(2) **Register as a Student at the General Medical Council Office, 44 Hallam Street, London, W. 1.**

(3) **Take a four years' curriculum as provided in the Regulations.**

(4) **Pass, at proper intervals, the Preliminary Science, First Professional, and Second Professional Examinations (in the case of L.D.S., R.C.S. Eng.), and the corresponding examinations for the degree sought.**

mechanical laboratory is 78*l.* 15*s.*, if paid in advance, or 84*l.* if paid in two instalments. Registrar of the University, Mr. J. Rafter, M.A.

Cork.—*University College.*—A constituent college of the National University of Ireland. The course of instruction in the department of dentistry extends over four years. For particulars apply to the Registrar of the College (Mr. A. O'Rahilly, M.A., B.Sc.).

Dublin.—*School of Dental Science, Trinity College.*—The cost of the course for the degree of B.Dent.Sc., including examination and degree fees, is 285*l.* 2*s.* Apply to the Registrar.

School of Dentistry, 25 Lincoln Place. Dean, Dr. A. W. W. Baker.

Dundee.—*Dental Hospital,* 6 Park Place.—Secretary, Mr. E. Tosh. (See St. Andrews *infra.*)

Edinburgh.—*School of Medicine of the Royal Colleges.*—Communications should be addressed to the Dean of the School, 11 Bristo Place.

Incorporated Dental Hospital and School, 31 Chambers Street.—Hospital practice is continuous. Total fees for education and diploma, 172*l.* 19*s.* Dean, Mr. W. Guy, F.R.C.S., L.D.S.; Secretary, Mr. G. M. Stuart, 56 Frederick Street.

Glasgow.—*Incorporated Dental Hospital and School,* 158 Renfrew Street and 15 Dalhousie Street.—Composition-fee for two years' hospital practice and lectures, 40*l.* on entry (or two instalments of 21*l.*). Dean, Mr. R. S. Grant, L.D.S.; Secretary, Mr. D. M. Alexander, 186 St. Vincent Street.

Leeds.—*Dental Department of the Univesity.*—The composition-fee for the courses for the degree of the University is 68*l.* 5*s.*; for the courses for the L.D.S., 63*l.* Secretary of the University, Mr. A. E. Wheeler.

Liverpool.—*University School of Dental Surgery.*—Candidates are prepared for the licence (L.D.S. Liverpool), the degree of B.D.S., and that of M.D.S. The composition-fee for the B.D.S. is, according to the University calendar, 237*l.* (for four sessions). Secretary of the Board of Dental Studies, Mr. W. H. Gilmour, M.D.S.

Manchester.—*Dental Department of the University.*—Students are prepared for one or more of the degrees of the University or for the L.D.S. diploma of the R.C.S. Eng. The fees are at present under revision. The Dental Hospital of Manchester and the Manchester Royal Infirmary are recognised as institutions for training in practical work. The Dean of the Medical Faculty of the University answers inquiries concerning classes, and the Bursar communications relating to fees.

Dental Hospital of Manchester, Oxford Road.—Fees under revision. Dean, Mr. J. H. Mathews, L.D.S.

Newcastle-on-Tyne.—*University of Durham College of Medicine,* Northumberland Road.—For particulars of the courses of instruction apply to Professor Howden, Secretary of the College.

Dental Hospital and School, Handyside's Buildings, Percy Street.—Composition-fee (exclusive of examination- and licence-fees), 51*l.* 9*s.* Dean, Mr. J. T. Jameson, L.D.S., 12 Windsor Crescent.

St. Andrews.—Courses for the L.D.S. diploma are given at University College and the Dental Hospital, Dundee, in connection with the Faculty of Medicine.

Sheffield.—*University Dental School.*—A course extending over four years has been arranged. For the present scale of fees apply to Mr. W. J. Law, L.D.S., Secretary of the Committee of Clinical (Dental) Studies.

Colonial and American Qualifications.—Some of these are accepted by the General Medical Council for registration in this country under reciprocal arrangements sanctioned by the Dentists Act. Among these qualifications are the B.D.S. and D.D.S. degrees of the University of Melbourne (Australia); the L.D.S. Vict.; and the B.D.S. degrees of the University of Sydney and the University of New Zealand. Dental graduates of the Universities of Harvard, Michigan, and Pennsylvania (U.S.A.) are exempt from certain parts of the dental examinations if they desire to take up the British qualification.

Science.

In this section we give particulars of the methods of qualifying as a professional chemist. The various adjectives employed before the word "chemist" are used to show that the user is not referring to the chemist qualified under the Pharmacy Acts, but to persons who specialise in chemical analysis, research work, or technical supervision of chemical processes. There are also many chemists employed in teaching work and in chemical engineering. There are no legal requirements for any of these professions, but certain qualifications are necessary for the various positions. For example, before a chemist can be appointed a public analyst he must satisfy the controlling authority—the Ministry of Health—that he possesses certain qualifications that fit him for the post. In the same way research chemists would need to hold science degrees. Works chemists more often than not grow up into the position, but as chemists would be better equipped with a groundwork of theoretical knowledge gained in acquiring a science degree. The university degree of B.Sc., with honours in chemistry, the Associateship of the Imperial College of Science, the Manchester College of Technology, or similar institutions, are of the highest class, and holders can take the Fellowship of the Institute of Chemistry in addition if they wish to specialise in the departments of chemical work covered by the last-named institution. There are many positions, such as the laboratories of wholesale drug-houses or public analysts, where a training in pharmacy gives the holder an advantage over academic chemists. It is on this account that many persons, having acquired the pharmaceutical qualification, pass on to the professional side and generally succeed in making an unqualified success of their career. The growing appreciation of chemistry in this country has had the effect of increasing the demand for well-qualified professional chemists.

Preliminary Education.

The standard of education which a young man requires who desires to obtain a science degree is that of the Matriculation examinations of the universities, but for the diploma of the Institute of Chemistry the standard need not be so high. Those who are able to pass the Matriculation examination should do so, as it is an advantage to be able at any subsequent time to sit for a Degree examination, the higher status conferred by a degree making this well worth striving after.

The London University Matriculation examination is typical of the entrance standard of the Universities of Great Britain and Ireland. It is an examination for which boys are systematically trained at most of the public schools. For those who have left school the technical colleges and institutes will afford the facilities for study. The approved Preliminary examinations required by those who wish to become students of the Institute of Chemistry include the University Matriculation examinations and the Preliminary examinations of other educational bodies—*e.g.*, the Senior Certificate or Professional Preliminary of the College of Preceptors. The compulsory subjects must be passed at one examination, but in certain circumstances the Council of the Institute of Chemistry accepts evidence that the subjects have been passed in two examinations. For particulars of the London Matriculation apply to the Registrar, University of London, South Kensington, S.W. 7, and for a list of Preliminary examinations approved by the Institute of Chemistry apply to the Registrar, 30 Russell Square, London, W.C. 1.

Science Degrees

The London science degrees are of world-wide repute, and they have the advantage that they are granted to both internal and external students. The examinations for the B.Sc. are (1) the Matriculation, (2) the Intermediate examination in science, and (3) the Final examination. The Intermediate examination takes place once a year and commences on the first Monday in July. A candidate must have passed the Matriculation examination not later than the preceding January. Candidates are required to

pass in any four subjects selected by themselves out of the following: (1) Pure mathematics; (2) applied mathematics; (3) experimental physics; (4) chemistry; (5) botany; (6) zoology; (7) geology; and (8) military science At least one of the four subjects selected must be taken from among the first three. The fee is 6*l.* 6*s.* Candidates enter either for a pass or for honours.

The Final examination for B.Sc. takes place once a year, commencing on the fourth Monday in October. Candidates must have passed the Intermediate at least a year previously, and the Matriculation at least three years previously. The fee is 6*l.* 6*s.* There are pass and honours sections. For the pass degree the candidate selects three out of thirteen prescribed subjects, while honours candidates take only one subject (of a much higher standard), along with an appropriate subsidiary subject. The degrees Master of Science (M.Sc.) and Doctor of Science (D.Sc.) are also granted.

The English provincial, Irish, Scottish, and Welsh Universities confer the B.Sc. degree (*cum curriculo*). As a rule the curriculum extends to three years after matriculation, with examinations at the end of each session. The degrees are granted in several branches—*e.g.*, agriculture, biology, botany, chemistry, engineering, mathematics, and physics. In the earlier stages of the curriculum all students study together, the differentiation according to the special subjects taking place later.

Diplomas for Analytical Chemists.

In professional chemistry the qualification of the Institute of Chemistry of Great Britain and Ireland (30 Russell Square, London, W.C. 1) is most sought after by pharmacists, for whom Branch E (analysis of foods and drugs, water, etc.) has special attractions. The Institute was founded in 1877, and incorporated by Royal Charter in 1885 with the aims of elevating the profession of chemistry and maintaining the efficiency, integrity, and usefulness of persons practising chemistry. Examinations are conducted periodically for the associateship of the Institute (A.I.C.). Associates who have been continuously engaged in applied chemistry for three years may obtain the Fellowship (F.I.C.), which is now practically essential for certain public appointments—*e.g.*, public analysts. The conditions for registration and examination are as follows:

Studentship.—Candidates must register at the Institute (30 Russell Square, London, W.C. 1) as students. They must be over sixteen years of age and have passed an approved Preliminary examination, and at the time of application be training at a recognised institution or under a Fellow of the Institute. Annual registration-fee, 10*s.*

Associateship.—Admission to the examination for associateship is open to: (i.) Candidates who have been systematically trained in a recognised university or college; (ii.) candidates who have been trained partly in recognised universities or colleges and partly under Fellows of the Institute in laboratories or works; (iii.) candidates who have been otherwise trained to the satisfaction of the Council and who have been engaged in the study and practice of chemistry for at least ten years. Admission to the associateship without examination may be granted: (i.) To candidates who have obtained certain university degrees with 1st or 2nd Class Honours in Chemistry, or other diplomas recognised by the Council; (ii.) in exceptional cases, until December 31, 1921, dependent on the consideration by the Council of the candidate's age, general education, scientific training, experience, original work, etc.

Fellowship.—Admission to the Fellowship is open by examination to associates of three years' standing, or may be granted without examination, or with a modified examination, at the discretion of the Council, to associates of three years' standing who (i.) have carried out original research; or (ii.) have devised processes or inventions; or (iii.) have satisfied the Council that they are possessed of knowledge and ability equivalent to having fulfilled the conditions contained in (i.) and (ii.). In special cases candidates who have been systematically trained, and who have had considerable experience, may be examined for the Fellowship without passing through the grade of Associateship.

The Examinations.

The subjects of examination for the associateship are as follows:

(*a*) *General Theoretical Chemistry.*—Candidates are required to show a thorough acquaintance with the fundamental laws and the current theories of chemistry, together with the properties and the methods of preparation of the more important elements and of their compounds, both inorganic and organic; their application in the arts and industries. At least two papers, including questions in inorganic, organic, and physical chemistry, will be set.

(*b*) *Practical Chemistry.*—Exercises in qualitative analysis and quantitative analysis (both gravimetric and volumetric), including the analysis of alloys, ores and minerals, and the determination of substances present in minute quantities, as impurities or otherwise, in commercial products. Preparation and purification of well-defined chemical substances. Organic analysis, including the recognition and determination of the elements and of typical groups and radicles, the identification of organic compounds.

Gas Analysis.—The determination of physical constants and the use of physical instruments employed by chemists. The examination in quantitative analysis may include the performance of some operation selected from the candidate's own record.

Candidates are required to satisfy the examiners as to their ability to translate technical literature from French and German into English with the aid of dictionaries.

The Fellowship examination is more specialised, there being various branches for which the candidates may enter. These include (E) the chemistry of foods and drugs, (F) biochemistry, and (G) chemical engineering.

The Regulations for the admission of students, associates, and Fellows are obtainable from the Registrar, 30 Russell Square, London, W.C. 1.

SCIENCE QUALIFICATIONS

(in brief)

B.Sc. LONDON DEGREE.

(1) Pass Matriculation.

(2) Intermediate Examination in Four Science Subjects selected out of Eight. Fee £6 6s.

(3) Final Examination taken at least one year afterwards. Fee £6 6s.

F.I.C. DIPLOMA.

(1) Pass approved Preliminary Examination and Register as Student while training with recognised instructor. Annual Fee 10s.

(2) After four years' day training, Examination for Associateship. Fee £5 5s.

(3) Three years after may be admitted a Fellow. Entrance Fee £5 5s.

Science Schools.

The following are the principal institutions at which science instruction can be obtained. For further particulars students should apply to the Secretary of the institution they propose to enter:

Aberdeen.—*University.*—Degree courses in science. *Robert Gordon's Technical College* includes a well-equipped chemical department (as well as pharmaceutical) and other classes in allied applied science.

Aberystwyth—*University College of Wales.*—Science course, 16*l.* per session (with practical work). Registration-fee, 1*l.*

Bangor.—*University College of North Wales.*—Inclusive fees as at Aberystwyth.

Barrow-in-Furness.—*Technical Schools, Abbey Road.*—Evening classes in chemistry are available.

Belfast.—*Queen's University.*—Class fees in the Faculty of Science, from 1*l.* 1*s.* to 3*l.* 3*s.* each subject, except practical chemistry, the fee for which is 7*l.* 7*s.* *Municipal Technical Institute.*—The fee for three subjects per course is 30*s.*

Birmingham.—*University.*—B.Sc. curriculum (pure science). *Municipal Technical School, Suffolk Street.*—Evening classes in chemistry, botany, and physics.

Blackburn.—*Municipal Technical School.*—Day and evening classes are available in chemistry, physics, and botany.

Bradford.—*City Technical College.*—Day technological diploma courses, extending over three or four years, in chemistry and dyeing.

Brighton.—*Municipal Technical College.*—Day courses for University of London examinations.

Bristol.—*University.*—Degree courses for B.Sc., M.Sc., and D.Sc. *Merchant Venturers' Technical College.*—Chemistry, physics, and Nature-study classes (evening), 10*s.* per subject.

Burnley.—Classes are held at the Municipal Technical Institute in chemistry and physics.

Cambridge.—*University.*

Cardiff.—*University College of South Wales and Monmouth.*

Cork.—*University College.*—A constituent College of the National University of Ireland. Class-fees usually 1*l.* to 3*l.*, except practical chemistry and post-graduate courses, 5*l.* to 10*l.* each.

Derby.—*Technical College.*—Classes in chemistry, botany, and physics.

Dublin.—*Royal College of Science.*—Similar to the Imperial College in South Kensington. Three years' course for A.R.C.Sc.I. in chemistry (pure and applied) and other branches. *Trinity College.*

Dundee.—*University College.*—Day classes in botany, chemistry, and physics. *Technical College.*—Central Institution for eastern counties of Scotland for technical and art instruction, particularly engineering and textile.

Edinburgh.—*Heriot-Watt College, Chambers Street.*—The day chemistry course is recognised by the University of Edinburgh and the Institute of Chemistry.

Exeter.—*Royal Albert Memorial University College.*—Degree course in science.

Galway.—*University College.*

Glasgow.—*University.*—Degree courses in science. *The Royal Technical College.*—The day and evening classes include chemistry, technical chemistry (oils and fats, fuel, gas-manufacture, sugar-manufacture, dyeing), physics, botany, and bacteriology.

Halifax.—*Municipal Technical College.*—Evening classes in chemistry, 7*s.* 6*d.* per course. Day classes, 4*l.* 4*s.* per course.

Huddersfield.—*Technical College.*—Full-day and evening courses in chemistry, physics, botany, and other science and technological subjects such as the chemistry and manufacture of dyes.

Hull.—*Municipal Technical College, Park Street.*—Evening classes in organic and inorganic chemistry; fees, 7*s.* 6*d.* to 10*s.* per course. B.Sc. day course 9*l.* 9*s.* per session.

Lancaster.—*The Storey Institute.*—Evening classes in chemistry, physics, and botany; fees, 7*s.* 6*d.* per course (including practical work), or 4*s.* per subject.

Leeds.—*University.*—The composition-fee for science degree course is 27*l.* 11*s.* per annum for the first three years and 21*l.* 11*s.* for the fourth year. *Central Technical School, Cookridge Street.*—The sessional fee for the evening courses in chemistry is 7*s.* 6*d.* to 15*s.*

Liverpool.—*University.*—Degree courses in science; the fees for the session 1920-21 have been increased 33⅓ per cent.

London.

Imperial College of Science and Technology, South Kensington, S.W. 7.—This is a national institution, and comprises the Royal College of Science, the Royal School of Mines, and the City and Guilds (Engineering) College. Year by year the College gathers students who have gained science scholarships in the examinations conducted under the Board of Education, including the Royal Exhibitions and National and Whitworth Scholarships. Government chemists are also trained at the Royal College, and private students are received for systematic training to qualify them for various pursuits in applied science. Entrants should have passed the Matriculation examination of the London University or its equivalent or the Entrance examination of the College. The courses of instruction extend to three years at least. The fees have recently been increased to 60*l.* per session. The diploma of A.R.C.S. (Associate of the Royal College of Science) is granted in mechanics, physics, chemistry, botany, zoology, and geology after three years' study; of A.R.S.M. after four years' training in mining, metallurgy, and the technology of oils, etc.; and of A.C.G.I. after three years' study in engineering. In all cases examinations are held in each academic year on the work of the year. The diploma of the Imperial College of Science and Technology (D.I.C.) is also awarded on similar conditions.

Battersea Polytechnic, Battersea Park Road, S.W. 11.—Complete day and evening courses in chemistry, botany, physics, and engineering. There are also special evening classes in bacteriology; food and drug analysis; oils, fats, and soaps; and "recognised" London B.Sc. courses.

Birkbeck College, Bream's Buildings, Chancery Lane, E.C. 4.—Complete courses (day and evening) for University of London science degrees and other examinations in science.

Borough Polytechnic Institute, Borough Road, S.E. 1.—A series of ten technical lectures on essential oils, by Mr. C. T. Bennett, B.Sc., Ph.C., will commence in September. Fee, 5*s.*, or 10*s.*, including practical work. Foodstuffs, electro-chemistry, and laundry materials are the subjects of other courses. Chemistry classes are also held, beginning in September; fees, 5*s.* to 10*s.* per session.

City of London College, White Street, Moorfields, E.C. 2.—Evening classes in chemistry (pure and commercial) cost 15*s.* per session for non-members.

East London College, Mile End Road, E. 1.—Classes in chemistry, mathematics, physics, and botany. Intermediate, Final, and Honours B.Sc. courses. Fees, 15*l.* 15*s.* per annum.

King's College, Strand, W.C. 2.—The composition-fee in the Faculty of Science is 31*l.* 10*s.* per annum; entrance fee, 6*l.*

Northern Polytechnic Institute, Holloway, N. 7.—The composite fees for the Intermediate and Final B.Sc. courses are: Day, 15*l.* per annum; evening, 2*l.* 10*s.* to 5*l.* 15*s.* per session. Evening classes in chemistry, botany, physics, and photography cost from 5*s.* to 50*s.* each subject.

Royal Holloway College, Englefield Green, Surrey.—For women students only, mainly residential. There are degree courses in science.

Sir John Cass Technical Institute, Jewry Street, Aldgate, E.C. 3.—Evening courses in chemistry, physics, also on fermentation industries, fuel, metallurgy, and mining at moderate fees.

South-Western Polytechnic, Manresa Road, Chelsea, S.W. 3.—Day and evening courses in chemistry and botany. Fees for the B.Sc. course: Day, 15*l.*; evening, 3*l.* per session. Classes are also held on food and drugs analysis.

University College, London, Gower Street, W.C. 1.—Fees for three years' B.Sc. course, including chemistry, 111*l.* 1*s.*

Wandsworth Technical Institute, High Street, Wandsworth, S.W.—Evening classes in science; fee, 5*s.* to 15*s.* per subject.

West Ham Technical Institute, Romford Road, E. 15.—Evening and day classes in chemistry and physics.

Woolwich Polytechnic, Lower Market Street, Woolwich.—Classes in chemistry and botany; fees, 7*s.* 6*d.* to 12*s.* 6*d.*

Manchester.—*University.*—Degree courses in science; the fees are under revision at the present time. The *College of Technology* also provides specialised instruction in applied chemistry. A new degree of Bachelor of Technical Science (B.Sc. Tech.) is now obtainable.

Newcastle-upon-Tyne.—*Armstrong College.*—Fees for curriculum of B.Sc. Durham in pure science, 60*l.*

Norwich.—*Technical Institute.*—Evening classes in chemistry and physics; fees 3*s.* 6*d.* to 15*s.* per session. Classes in practical chemistry and practical physics are held on two mornings per week.

Nottingham.—*University College.*—London University B.Sc. day course in chemistry; composition-fee, 6*l.* per term. Evening classes in chemistry, physics, botany; sessional fees, 7*s.* 6*d.* per class to 10*s.* per course.

Oxford.—*University.*

Plymouth.—*Municipal Science, Art, and Technical Schools*:—Day courses in science subjects cost 1*l.* to 5*l.* 5*s.* per subject, or degree course 12*l.* 12*s.* to 15*l.* 15*s.* per session. Evening classes 5*s.* to 10*s.* each, or course of study 10*s.*

Portsmouth.—*Municipal College.*—Instruction in science subjects (including chemistry, physics, and botany) costs from 3*s.* 6*d.* to 15*s.* per course at evening classes and 5*l.* 5*s.* to 10*l.* 10*s.* per session at day classes.

Reading.—*University College.*—B.Sc. course for London University examination, 30*l.* per session. Evening classes in chemistry and botany, fees from 7*s.* 6*d.* to 1*l.*

Rochdale.—*Municipal Technical School.*—The fees for chemistry and botany (evening classes) are 6*s.* per subject, practical work included.

St. Andrews.—*United College.*—Class-fees in University degree course are from 1*l.* 11*s.* 6*d.* to 4*l.* 4*s.* per subject during the summer session and 3*l.* 3*s.* to 4*l.* 4*s.* in the winter session. All graduating students pay an inclusive fee, which covers a stated number of courses.

Halford.—*Royal Technical Institute.*—Two years' day course, for which a diploma, endorsed by the Board of Education, is awarded. Fees, 5*l.* 5*s.* to 12*l.* 12*s.* Evening courses in chemistry and physics, qualifying for "course" certificate. Fees, 7*s.* 6*d.* to 1*l.* 5*s.*

Sheffield.—*University.*—Degree courses in science. The courses are under revision. *Central Secondary Evening School.* Classes in chemistry and botany; fees, 4*s.* to 5*s.* per subject.

Southampton.—*Hartley University College.*—B.Sc. course; composition-fee, 30*l.* per session, and 11*l.* 5*s.* tuition-fee.

Swansea.—*Technical College.*—Evening classes in chemistry, physics, and botany; fee, covering all subjects, 10*s.* per session. Day courses are held for degrees in science.

Optical Diplomas.

Ophthalmic opticians have in the past met with considerable opposition from medical men, though, as the latter are beginning to realise that the optician does not wish to trespass, they are gradually changing from opponents to staunch supporters, and it is possible that in the near future the optician will obtain proper recognition. At present no legal qualification is necessary in order to practise sight-testing, but it is desirable that any pharmacist taking up this as a side-line should possess one or more other of the well-known diplomas. There are two recognised examining bodies, the Spectaclemakers' Company and the British Optical Association. Each has its official school where the all-round knowledge necessary for the examinations may be gained. Ophthalmic optics and the sale of optical instruments form valuable adjuncts to a chemist's business, and no great amount of capital is required in the first instance. Both at home and abroad it is often more convenient, from the point of view of cost and time, to grind one's own lenses, so that a knowledge of the various processes involved and of the requisite machinery is useful. No great amount of machinery is required, nor is it very complicated. We also direct attention to the advantages to chemists who are interested in optics of becoming connected with the Society of Chemist Opticians, which was founded in the interests of chemists carrying on an optical business. Membership carries with it a weekly journal ("The Optician"). The Hon. Secretary is Mr. J. Harcombe Cuff, 25 Friern Barnet Road, London, N.

The Diploma Scheme.

The Spectaclemakers' Company, 11 Temple House, Temple Avenue, London, E.C., whose Royal Charter was granted in 1629, and whose diploma scheme, founded in 1898, has been revised at intervals on progressive lines, holds examinations in London in May and November of each year. There are two divisions of the examinations for the diploma in visual optics and sight-testing:

(1) The Preliminary division, consisting of (*a*) optical bench work, (*b*) a *viva-voce* examination in general and practical optics, (*c*) a written examination in optical calculations and practical optics, and (*d*) a practical examination in the neutralisation of lenses and lens-setting.

(2) The Final, consisting of (*e*) practical examination in frame adjustments and measurements, and optical prescriptions, (*f*) *viva-voce* examination in visual optics, (*g*) written examination in visual optics, and (*h*) practical examination in the adaptation of lenses to correct errors of vision.

Candidates over eighteen years of age are admitted to the preliminary division, but not to the final until twenty-one years of age. Candidates over forty years of age, who have spent ten years in the optical industry, are exempted from section (*c*) of the preliminary. Entries, together with the fees, 3*l.* 3*s.* for each division, are payable one calendar month prior to the examination, and in addition there is a registration fee of 4*l.* 4*s.* (including 3*l.* Government duty), payable when the diploma is issued, and an annual payment of 4*s.* to the Company for "quarterage." Candidates who pass in some sections and fail in others are not required to sit for the sections in which they were successful. A diplomate is entitled to use the initials F.S.M.C. and the arms of the Company for business purposes and to claim the freedom of the City of London at a cost of 1*l.* 1*s.* The examination is accepted as a qualification for the fellowship of the Institute of Ophthalmic Opticians. The full prospectus, with application form, can be obtained from the Clerk of the Company, 11 Temple House, Temple Avenue, London, E.C. 4.

The British Optical Association (incorporated 1895), 10 Clifford's Inn, London, E.C. 3, whose scheme has also undergone considerable modification in recent years, holds two examinations, the associate (Dioptric) and final (Fellowship). The examinations are held in London in May and November of each year, and occasionally at provincial centres. The last date of application for examination is fourteen days before the date of each examination. Every candidate must furnish the name of some person residing in the United Kingdom who will become bond to the extent of 10*l.* for the safe return (in the case of death, bankruptcy, or misconduct of the member) of the certificate, which always remains the property of the Association. Candidates who pass in one section and fail in others may not be required to sit for the sections in which they were successful. In every instance candidates must supply their own test cases, trial frames, test types, etc. The subjects of the examination are lenses, frames, subjective sight-testing, dissection, physical optics, physiological optics, anatomy and physiology of the eye, photometry, prismetry, and ethics.

For the Fellowship examination candidates must hold the dioptric certificate, and are examined in similar subjects as before, but a deeper knowledge is required, and prismetry, ophthalmoscopy, embryology, and microscopical demonstrations are included. The examination-fees are: Intermediate (dioptric) certificate, 7*l.* 7*s.*; final (Fellowship grade), 5*l.* 5*s.*

The dioptric certificate entitles the holder to the use of the initials D.B.O.A., and the Fellowship certificate to F.B.O.A.

Optical Instruction.

The following are among the principal schools where the necessary instruction in preparation for the examinations of the bodies named may be obtained:

The School of Optics, Ltd., 2 Guildford Place, London, W.C. 1, where Mr. Lionel Laurance, who is official instructor to the Spectaclemakers' Company, and Mr. H. Oscar Wood prepare students for the Company's examinations, is well fitted up and thorough training is given. There are two courses. The complete full-time course (fee 31*l.* 10*s.*), which commences in May and November of each year, terminates with the next succeeding examination, and covers both the preliminary and final divisions. The part-time combined course (fee 14*l.* 14*s.*) consists of home-work by correspondence, supplemented by classes, which are held each day for four weeks immediately preceding the examination. The books for the Company's examination, written by Mr. Laurance, are "General and Practical Optics" and "Visual Optics and Sight-Testing."

The British Optical Institute, Ltd., Fern Lodge, 20A Grove Road, Brixton, London, S.W. 9, offers every facility for the instruction of those wishing to prepare for the examinations of the British Optical Association and the Spectaclemakers' Company. The necessary tuition is obtainable at day and evening classes or by a system of postal correspondence. The Institute is well equipped for the special teaching of practical sight-testing in the clinic classes under the guidance of well-trained instructors. Vacation classes, with individual attention, not necessarily for examination purposes, are held during the months of August and September. The Principal is Dr. Max Coque, B.Sc.

The Northampton Polytechnic Institute, Clerkenwell, London, E.C. 1.—The full course of technical optics occupies two years, and consists of lectures, laboratory work, drawing-office work, tutorial classes, and workshop practice. A diploma in technical optics is awarded on the completion of a two years' course with satisfactory records in examination and class work. Evening students also receive certificates of attendance and satisfactory progress. The winter term begins late in September. The fees for the full-time day course are 15*l.* per session (September to July). Partial courses (two afternoons a week) may also be taken, for which the fee is 3*l.* per

session, and there are afternoon classes suitable for chemists in business who cannot leave during the whole day. The entire field of optics is covered both theoretically and practically, and students can specialise either in opticians' work or in optical-instrument making. The "Aitchison Memorial Scholarship," of the value of 30*l.*, is tenable at the Institute and is open to candidates between the ages of sixteen and eighteen years. The examination for the scholarship is held in September. There are two compulsory subjects (English and elementary mathematics) and two optional subjects. Full particulars may be obtained from the Secretary and Treasurer, Mr. H. F. Purser, 35 Charles Street, Hatton Garden, E.C. 1. The prospectus of the optical department can be had by applying to Dr. R. Mullineux Walmsley, the Principal.

Mr. C. A. Scurr, F.S.M.C., chemist and druggist, 40 Courthope Road, Hampstead, London, N.W. 3, prepares students for both the Spectaclemakers' and the British Optical Association's examinations. The course may be commenced at any time and extended over any period. This meets the requirements of chemists who are unable to give up business for the purpose of whole-time study. The fees for either examination are 8*l.* 8*s.*

The College of Optics, Glasgow and Edinburgh, forms a centre for optical instruction in Scotland, and complete training may be obtained for either examination. There are "all day" and correspondence courses, which can be arranged to suit each individual student. Full particulars may be obtained from the Principal, Mr. T. S. Baird, F.R.M.S., F.S.M.C., 395 Argyle Street, Glasgow.

Veterinary Surgery.

The duties of a veterinary surgeon are not confined to the treatment of animals. In the matter of securing a sound and wholesome meat and milk supply, and in the eradication of tuberculosis, the veterinary officer of to-day plays an important part. It is very evident that in the near future the number of veterinary officers required by the public authorities will materially increase, and the assistance of the veterinary specialist will be more extensively utilised in connection with public health. Numerous appointments under Colonial Governments are open to Members of the Royal College of Veterinary Surgeons; and many appointments under municipal and county authorities in this country are held by members of the veterinary profession. The Veterinary Surgeons Act of 1851 rendered it illegal for an unregistered person to assume the title or description of veterinary surgeon or practitioner of veterinary surgery. The Act created the Royal College of Veterinary Surgeons, which is the only institution in this country empowered to grant licences for the practice of veterinary surgery. The amending Act, which recently received the Royal assent, empowers the College to impose a fee of 1*l.* 1*s.* on all its members (with certain exceptions). At the present time there are about 3,300 members on the register. The Royal College confines itself to examining candidates for its diploma; instruction must therefore be gained at one of the affiliated colleges in London, Edinburgh, Dublin, Glasgow, or Liverpool. Before entering one of these colleges the student is required to pass an examination somewhat similar to the Pharmaceutical preliminary, the subjects being English, mathematics (arithmetic, algebra, and geometry), and two languages, Greek, Latin or modern languages such as French, German, Italian, or Spanish. The course of study for the diploma M.R.C.V.S. covers a period of four years, with an examination at the end of each academic year. The subjects are substantially those of the professional examinations, viz.:

First Professional Examination.—Anatomy of the domesticated animals; chemistry and physics; biology; zoology and botany.

Second Professional Examination.—Anatomy of the domesticated animals; histology and physiology; stable management, the manipulation of animals, and the principles of shoeing.

Third Professional Examination.—Pathology, bacteriology, and protozoology; morbid anatomy; therapeutics; materia medica and toxicology; veterinary hygiene and dietetics.

Fourth Professional Examination.—Principles and practice of veterinary medicine; meat inspection; principles and practice of veterinary surgery, and obstetrics.

The examination fee for each year is 5*l.*

The Fellowship examination of the Royal College in one of the following subjects—Anatomy, physiology, pathology, helminthology and entomology, pharmacology and toxicology, medicine, tropical medicine, surgery, or sanitary science—is open to members of two years' standing. Particulars of the examinations may be obtained from Mr. Fred Bullock, secretary, Royal College of Veterinary Surgeons, 10 Red Lion Square, London, W.C. 1. There are three research scholarships of the value of 150*l.* per annum open to members.

Veterinary Degrees.

Veterinary-science degrees are granted by the Universities of Bristol, Edinburgh, Glasgow, Liverpool, London, and Manchester to candidates who matriculate and take the prescribed course of study. These degrees, however, do not in themselves enable the graduate to practise as a veterinary surgeon. An extra year is required to cover the curriculum for a degree. The chief inducement to obtain a degree is the higher professional status which it confers. The matriculation requirements of the particular University whose degree it is desired to obtain must be fulfilled.

Veterinary Colleges
(*Affiliated to the R.C.V.S.*)

London.—*Royal Veterinary College* (founded 1791; incorporated 1875), Great College Street, Camden Town, N.W.—Educational fee for four years' course of instruction, 105*l.*, may be paid in four instalments. There is also a library fee of 2*l.* 12*s.* 6*d.* Fees for occasional students are from 3*l.* 3*s.* to 8*l.* 8*s.* per subject. Principal and Dean, Professor Sir John McFadyean, M.B., B.Sc., LL.D., M.R.C.V.S. Secretary, Mr. T. C. Wight.

Edinburgh.—*Royal (Dick) Veterinary College*, Summerhall (founded 1823).—Entrance and class fees for the complete curriculum amount to 85*l.*, with an extra fee of 6*l.* 6*s.* for each subsequent period of ten weeks. Principal, O. Charnock Bradley, M.D., D.Sc., M.R.C.V.S.

Dublin.—*Royal Veterinary College of Ireland*, Shelbourne Road, Ballsbridge.—The college is conducted by the Department of Agriculture and Technical Instruction for Ireland. Fees, 21*l.* per session, with 1*l.* 1*s.* entrance fee. Principal, Professor J. F. Craig, M.A., M.R.C.V.S., M.R.I.A., Professor of Medicine and Meat Inspection. Registrar, Mr. G. E. Haines.

Glasgow.—*Glasgow Veterinary College* (established 1862; incorporated 1909), Buccleuch Street, Garnethill.—Fee for the complete course, 85*l.* 16*s.* Principal, Mr. S. H. Gaiger, F.R.C.V.S.

Liverpool.—*The University Veterinary School* gives a university training for the M.R.C.V.S. and also for a veterinary degree. For the fees and complete curriculum application should be made to the Director of Veterinary Education.

Scientific Progress.

Temperatures under this heading are on the Centigrade scale.

Hydrocyanic Acid in Plants. — Concerning the Sapindacea, *Schleichera trijuga*, Willd., growing in India and Burma, which possesses seeds with a high content of oil, and which is said to yield the genuine Macassar oil (*see* "Pharmaceutical Formulas," ninth edition, p. 90), Gehe stated in 1887 that the oil contained about 0.05 per cent. of hydrocyanic acid. Rosenthaler recently ("Schweiz. Ap. Zeit.," January 8, 1920) investigated the seeds to discover the source of the hydrocyanic acid, which he found present in amounts varying from 0.18 to 0.47 per cent. He came to the conclusion that the seeds contain a substance, possibly a glucoside, which is a compound of hydrocyanic acid, but which does not belong to the amygdalin, phaseolunatin, or linamarin groups. The substance obtained from the seeds by extraction with ether is not a glucoside, but possibly an oxynitrile.

Trade Report.

42 Cannon Street, E.C. 4, Aug. 19.

THERE is little of interest to report this week, and business in all sections of the markets continues of extremely small dimensions, this applying particularly to home trade, whereas the export side is not so acutely depressed. Arrivals of all kinds of produce have taken place freely of late, and there should be a good assortment of crude drugs on offer at next week's auction. The few changes in value include an advance in menthol. Japanese refined camphor is also the turn better; ergot continues very irregular for new crop to arrive, but spot prices are easier. Fenugreek-seed has been in good demand at rising prices; linseed is also firm, and the oil is higher. Nux vomica is still scarce and dearer on spot. Agar-agar is a shade firmer. Castor oil and turpentine are lower. New Belgian chamomiles are on offer. Among chemicals the tendency has been mostly downwards, including guaiacol carbonate, methyl salicylate, hydroquinone, heliotropine, soda caustic, and soda hyposulphite; soda tartarata and pulv. seidlitz are in very limited supply, and makers find difficulty in satisfying the demand. Potash bromide has been in more inquiry, but prices continue in buyers' favour. Citric acid, tartaric acid, and cream of tartar also show slightly more demand, chiefly on export account at previous rates.

Higher	Firmer	Easier	Lower
Fenugreek-seed Linseed oil Menthol Nux vomica Platinum	Agar-agar Eucalyptus oil Pepper, white	Arsenic Bromstyrol Cantharides (Ch.) Cassia lignea Cinnamon-leaf oil (Cey.) Citronella oil Farina (Jp.) Guaiacol carb. Heliotropine Hydroquinone Lemon oil Mint oil (Jp.) Musk xylol Pennyroyal oil Soda hyposulphite	Antimony (reg.) Aubepine Castor oil Lead products Methyl anthranilate Methyl salicylate Nerolin crystals Sage oil, forward Turpentine

The drug-auctions are due to be held next Thursday, August 26.

Cablegram.

NEW YORK, August 17.—Business is fair. Phenacetin has declined to $2.20, and antipyrine (phenazone) is 30c. lower at $4.00 per lb. Hexamine has been reduced to $2.75, and saccharin to $3.25 per lb. Peppermint oil in tins is cheaper at $6.75, and senega is again easier at $1.00 per lb. Copaiba is lower at 60c. for South American. Menthol is higher at $6.75, and short buchu is also dearer at $3.75 per lb.

AGAR-AGAR is firmer, with spot sales of No. 1 Japanese strip at 2*s.* 6*d.*, sellers now asking 2*s.* 7*d.*, and for No. 2 2*s.* 5*d.* is asked. The exports from Japan during May amounted to 67,944 kin, valued at 107,937 yen. During the five months ended May 31 they were as follows:

	1918	1919	1920
Kin...	1,780,725	860,979	588,311
Yen...	1,881,490	1,122,943	953,040

ALBUMEN.—Towards the close of last week the spot price of prime Chinese hen-egg eased to 4*s.* 9*d.* per lb., but subsequently 4*s.* 10*d.* to 4*s.* 11*d.* was paid. For August-October shipment 4*s.* 9*d.* c.i.f. is asked.

ANTIMONY.—Demand is slow, and the price of crude is no better than 40*l.*, although the supply is of no special importance. There is certainly a weaker feeling, while foreign regulus on the spot is now obtainable down to about 45*l.* ex warehouse. The tendency in America has been weaker, spot parcels being pressed for sale at considerably below cost of import. The total American imports for five months of crude metal at 6,903 tons were almost as large as the total for the whole of last year. Whereas normal American consumption is about 1,000 tons a month, estimates of current needs are placed at only 400 to 500 tons a month.

ARSENIC.—The demand has fallen off distinctly, and prices for white Cornish are no better than 74*l.* to 75*l.* delivered London, although the supply is rather light.

ASPIRIN shows a small demand only, at from about 5*s.* to 5*s.* 3*d.* per lb. as to quantity.

BISMUTH.—The tone has remained steady, while the price of the "ring" continues at 12*s.* 6*d.* per lb. Supplies are fairly regular and steadily absorbed at current terms.

BROMIDES.—A slightly better demand is reported for potash, which is offering at from 2*s.* 4*d.* to 2*s.* 6*d.* per lb., according to quantity. Soda is about 3*s.*, and ammonia 3*s.* per lb.

CAMPHOR (REFINED) is firm, with further spot sales of 2½-lb. slabs at 7*s.* per lb.

CANTHARIDES.—Russian continue scarce, with small sales at from 14*s.* to 14*s.* 3*d.* per lb. Chinese are easier, offering at 5*s.* 6*d.* spot.

CASSIA LIGNEA is easier, with sellers of selected on the spot at 60*s.* and broken at 45*s.* per cwt.

CASTOR OIL.—Hull make is easier, pharmaceutical quality offering at 78*l.* per ton, first pressing at 72*l.*, and second pressing at 68*s.* per ton in barrels ex works Hull. Apart from the above, there are sellers of pharmaceutical quality in barrels at 75*l.* per ton.

CHAMOMILES.—New-crop Belgian offer at from 180*s.* to 190*s.* per cwt. c.i.f.

CHILLIES continue very scarce, like capsicums, but it is anticipated that the high prices realised will attract more supplies. Japanese have been retailed at an extremely high figure.

CINCHONA.—At the auction of Java pharmaceutical bark to be held at Amsterdam on Wednesday, September 1, 3,597 packages, weighing about 208,050 kilos., will be offered. The first-hand stock at Amsterdam on August 12 consisted of 17,549 packages.

CINCHONINE SULPHATE has been sold more freely of late. A limited quantity is offered at 1*s.* 11*d.* per oz. c.i.f. London.

CITRIC ACID has shown slightly more demand for export account, sellers quoting 4*s.* 9*d.* per lb.

CLOVES.—Zanzibar are firm, with spot sales of fair at 1*s.* 7*d.* to 1*s.* 6*d.* per lb.; there are buyers of October-December delivery at 1*s.* 5*d.* Penang have been more inquired for of late, but the yield has been small this year and the quality not so good.

COCA-LEAVES.—At the auction of Java leaves at Amsterdam on September 1, 6,401 packages, weighing about 354,125 kilos., will be offered; also seven packages Peruvian, weighing 1,150 kilos. The first-hand stock at Amsterdam on August 12 amounted to 9,261 packages Java and seven packages Peruvian.

COD-LIVER OIL.—The Norwegian market is quiet, with a small business, and the price of 280*s.* per barrel is nominal. The exports from Norway up to July 24 amounted to 21,657 barrels.

COLOCYNTH.—Although 100 cases Turkey apple have just arrived, they are held for 2*s.* 3*d.* to 2*s.* 6*d.* per lb. Pulped is selling at 2*s.* 3*d.* for good white and 1*s.* 9*d.* for ordinary.

CONDURANGO is difficult to sell, and for round lots 6*d.* per lb. would be accepted.

COPPER SULPHATE.—The tone seems less depressed, while makers ask from 40*l.* to 42*l.* f.o.b. Liverpool, less 5 per cent. for casks. The fact deserves notice that many thousand tons of rough bar copper, which is more particularly suitable for sulphate making, have been shipped abroad lately from this country, chiefly to Italy, where sulphate-makers appear to be very busy.

CREAM OF TARTAR has been in rather more demand at the unchanged price of 270*s.* per cwt. for 99 to 100 per cent. powder. Fair arrivals have taken place.

EGG PRODUCTS are steady, with Chinese offering at from 85*s.* to 90*s.* per cwt.; new has been sold at 120*s.* spot. August-October shipment is offered at 100*s.* to 105*s.* c.i.f. Dried yolk is 10½*d.* to 11*d.*, sprayed whole egg 1*s.* 10*d.*, and native dried whole 1*s.* per lb.

Ergot.—The prices quoted from Spain and Portugal continue as wide as before, ranging from 15*s.* up to 21*s.* 6*d.* per lb. c.i.f. Spot sales have been made at 18*s.* per lb. Both ergot and the liquid extract cannot be exported from this country without a licence, but the time is approaching when this veto should be withdrawn. The *Melilla*, from Lisbon, has brought 60 bags to London, the *Magdeburg* five bags, and the *Vanholm* 38 bags from Bilbao.

Farina.—Japanese is quiet and the turn easier, No. 1 offering on the spot at 31*s.* 6*d.* to 32*s.* per cwt.; to arrive, the sales include August-September shipment at 29*s.* 9*d.* to 29*s.* 6*d.* c.i.f. The spot value of *sweet* is 31*s.*

Fenugreek-seed continues in good demand, with rising prices, as stocks are being rapidly depleted. Business has been done at 14*s.* per cwt. on the spot for fair Morocco.

Floral Waters.—Rose and orange-flower are dearer, having sold at 15*s.* 6*d.* per gal. in 6-gal. carboys.

Fusel Oil can be had at 30*s.* per gal. in drums on the spot. There is a shortage, however, and it cannot be imported at a profit from the United States at this price.

Galls are steady, plum-shaped Chinese offering at 170*s.* per cwt. on the spot, and afloat at 150*s.* c.i.f.; ordinary shape is 150*s.* spot and 135*s.* c.i.f.

Ginger has been sold rather more freely of late, particularly washed rough Cochin, for which 57*s.* 6*d.* to 62*s.* 6*d.* is quoted; new sound Calicut is 80*s.* Very little African is offered, and the high price of 57*s.* 6*d.* is asked. Small lots of Jamaica have arrived and are held for very high prices; common to good common is 175*s.* to 185*s.*, and medium to good 190*s.* to 200*s.* Japanese, which declined to 55*s.* per cwt., is now steadier at 57*s.* 6*d.* on the spot.

Guaiacol Carbonate is easier at from 24*s.* to 25*s.* per lb.

Guaiacum.—Holders maintain their previous high prices of 5*s.* 6*d.* to 7*s.* for glassy, 3*s.* 6*d.* for middling, and 2*s.* 9*d.* for drossy, but find it difficult to effect sales. The large London stock of 302 packages was noted at the end of July.

Hexamine is steady at about 16*s.* per lb.

Honey is steady, but the auction next week will be a guide to prices. Several large inquiries for Australian have been received, but it is not too plentiful. Californian has been sold at 102*s.* 6*d.* for good pale. Cuban can be had at from 75*s.* to 85*s.* as to quality, San Domingo at 82*s.* 6*d.* for light set and 72*s.* 6*d.* for ordinary.

Hydroquinone is easier at from 9*s.* 6*d.* to 10*s.* 6*d.* per lb., according to quantity.

Lead Products.—On Friday last, prices for white lead were lowered 2*l.* to 2*l.* 5*s.* a ton, and those of lead oxides 2*l.* 10*s.*, owing to the sharp fall in pig lead to about 35*l.* 5*s.* for near delivery. The revised quotations were officially issued as follows: Dry white lead for export, 63*l.* 10*s.*, and ground white lead in oil 72*l.* 15*s.* f.o.b. Red lead and litharge, 59*l.* 10*s.* a ton for less than 5 tons, and 57*l.* for 5-ton lots and more, both for the home trade and export. There are now some complaints of slackness in some directions, while the orders worked off are not always replaced by new ones.

Linseed is firm at 45*s.* per cwt. on the spot for good clean bold.

Linseed Oil.—The trade demand having further developed, holders of spot and near-at-hand parcels have advanced their terms further, while seed values have continued firm. Spot closed at 82*l.* and Hull at 78*l.* 10*s.* naked.

Lycopodium.—Some finest treble-sifted is close at hand, when spot position may be eased a trifle.

Menthol is dearer, with spot sales of Kobayashi-Suzuki at from 35*s.* to 37*s.* 6*d.* per lb.

Methyl Salicylate can be had at 4*s.* per lb., which is cheaper than our last quotation.

Mustard-seed.—Good yearling English yellow is quoted at 67*s.* 6*d.* per cwt.

Myrrh.—Holders maintain previous prices in spite of an inordinately large London stock placed at 582 packages at the end of July, but the bulk is of ordinary quality. Pale Aden sorts offer at from 14*l.* to 15*l.*, and ordinary dull at from 11*l.* to 12*l.* per cwt.

Olibanum is quiet, with good pale drop offering at 150*s.*, medium at 125*s.*, good garblings at 90*s.*, and siftings at 100*s.* per cwt.

Opium.—The London market remains unchanged, with business quite retail.

Smyrna, July 29.—The arrivals of new crop opium at Smyrna are nil, and at Constantinople only two cases Balukesser have arrived, whereas at the corresponding date last year the arrivals attained almost 200 cases. News from the Interior regarding the new crop is not reassuring, and cutting is being made under poor conditions. The political situation, lack of labour, following on emigration of the peasants, and the higher wages asked render the position of new crop precarious. The district of Anar, which usually produces 250 to 300 cases, has this season yielded one-tenth only. The districts of Alashéir, Koula, Yordes, Demerdjik, which together produce about 300 cases, have this year yielded about one-fortieth. The plateaus of Karahissar and the Konia valley, which have previously given large yields, suffered from the severe winter weather, and the sowings have not given the results expected. No figures are yet available of these districts, but optimistic valuations give 2,000 cases for Malatia, Tokat, etc., and in Macedonia 350 to 400 cases are expected. Rains at the critical time of cutting have rendered the quality poor, and we are of opinion that prices will be maintained, and even advanced, when the demand sets in. The stock at Smyrna and Constantinople has fallen to about 1,000 to 1,200 cases. Large and continued sales for Japanese account and further orders in hand keep the situation firm.

Smyrna, July 31.—With the exception of one case of selected manufacturing opium, which changed hands at 20*s.* per lb. c.i.f., we have nothing further to report. The position, however, is firmly maintained owing to non-arrivals from the Interior. Our stock on this market is only about 700 cases, 80 per cent. of which is in strong hands. The exchange to-day is piasters 417 per pound sterling for cheque and $0.90 for one Turkish paper pound. The arrivals are 32 cases, against 155 at same date last year.

Pepper is steady, with black Singapore selling at $6\frac{1}{8}$*d.* per lb. on the spot; to arrive, August-October has been sold at $6\frac{3}{8}$*d.* c.i.f., and for October-December $6\frac{1}{2}$*d.* c.i.f. has been paid. Lampong is $6\frac{3}{4}$*d.*, Tellicherry $7\frac{1}{2}$*d.*, and Aleppy $6\frac{3}{4}$*d.* per lb., all spot. *White* pepper is dearer, the spot sales including Muntok at 1*s.* $1\frac{1}{4}$*d.* to 1*s.* $1\frac{3}{4}$*d.*; August-October shipment has been sold at 1*s.* to 1*s.* $0\frac{1}{4}$*d.*, and October-December 1*s.* $0\frac{1}{8}$*d.* to 1*s.* $0\frac{3}{8}$*d.* c.i.f. Singapore on the spot has been sold at 1*s.* $0\frac{1}{4}$*d.* to 1*s.*, August-October shipment at $11\frac{1}{4}$*d.* to $11\frac{1}{8}$*d.* c.i.f., and September-November at 1*s.* c.i.f.

Pimento is unaltered in value, but the position is steadier, with spot sellers at 4*d.* per lb.

Platinum.—The price is considerably higher again, the chief refiners having been induced to lift their terms to as much as 30*l.* to 31*l.* per oz. under a keen demand which is believed to be largely speculative. Palladium has risen in sympathy to about 30*l.* per oz. The market, however, is considered rather uncertain.

Quassia.—Best chips are offered at 44*l.* per ton in quantity on the spot.

Quicksilver.—The home demand is fair and with a few more inquiries from the East, the tendency is quite steady at prices standing at 20*l.* 10*s.* to 21*l.* per bottle. Last month's imports were 5,475 bottles, making a total for seven months of 26,969 bottles, which compares with 2,601 bottles for the same period last year.

Quinine.—From 4*s.* 5*d.* to 4*s.* 6*d.* per oz. is quoted for sulphate from second-hands, the makers' price being 4*s.* 1*d.* The arrivals this week comprise 204,000 oz. sulphate and 62 000 oz. hydrochlor. from Java. The Board of Trade Returns give the following figures:

	1913 Oz.	1919 Oz.	1920 Oz.
Imports (July) ...	50,946	1,335,672	157,824
Do. (Jan.-July) ...	1,467,662	3,437,912	2,827,626
U.K. exports (July) ...	211,834	365,232	342,884
Do. (Jan.-July) ...	820,797	833,331	1,860,612
Re-exports (July) ...	2,072	212,210	93,932
Do. (Jan.-July) ...	247,311	1,484,781	390,283

Rhubarb is unaltered, Shensi offering at 12*s.* 6*d.*, flat High-dried at 10*s.* 6*d.*, and rough round High-dried at from 5*s.* 9*d.* to 6*s.* 3*d.* per lb. as to quality. The stock in warehouses at the end of July was 904 cases.

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Saccharin.—Both the home and export markets are quiet, with 550 pure offering at 135*s*. per lb., duty paid. The Board of Trade Returns give the following figures :

	1913 Oz.	1919 Oz.	1920 Oz.
Imports (July)	168,828	827	4,227
Do. (Jan.-July) ...	866,111	1,070,007	328,258
Home consumption (July)	140,740	38,712	195
Do. (Jan-July) ...	792,215	259,676	14,067
Re-exports (July)	5,056	98,719	21,570
Do. (Jan -July) ...	89,846	163,484	338,219

Salicylates.—Salicylic acid meets with a slow sale, and although English makers maintain their previous quotation of 3*s*. 6*d*. per lb. for B.P., there are sellers of imported parcels at 2*s*. 9*d*. to 3*s*., as to quantity. Sodium salicylate powder is offered at from 3*s*. 8*d* .to 3*s*. 9*d*., and crystals at 4*s*. 9*d*. to 5*s*. per lb. When the Government Bill for the protection of key industries is introduced early in the next session of Parliament it is quite possible that salicylates will be found on the list.

Saltpetre.—Owing to the advent of German there is now keener competition for business with English refiners.

Senega.—Spot sales have been made at 9*s*. per lb., and to arrive 6*s*. 3*d*. c.i.f. has been paid. Meanwhile the New York price has declined to $1.00 per lb.

Shellac has been quiet throughout, with small sales of usual standard quality TN Orange at 675*s*. per cwt.; fair Orange is 900*s*., fine second Orange 800*s*., pure button 850*s*., AC cakey Garnet 580*s*., GAL 550*s*., and G 530*s*. August is nominal at 650*s*., and October has been sold at from 590*s*. to 610*s*., being dearer.

Soda, Caustic.—Resale parcels are slightly easier at about 37*l*. to 38*l*. per ton for 76 per cent.

Soda Hyposulphite has come to hand rather more freely from the United States and France, and the tendency is slightly easier. Pea crystals offer at 42*l*. to 43*l*. per ton.

Tartaric Acid has shown slightly more demand, and is firm at 3*s*. 2*d*. per lb.

Thymol.—British-made ex Spanish thyme oil is unchanged at 47*s*. 6*d*. per lb. spot.

Turpentine.—The tendency has been very irregular. The outstanding feature has been the renewed sharp fall in spot and early delivery, the premium on which as compared with distant delivery has entirely disappeared. The fact that receipts have been on the increase and the stocks here have been swelled to about 20,000 barrels, and that outside competition is more active, has had a bearing on the position. There is some little speculative interest in forward spirit, and this may have a steadying effect on the whole market, although prices are complained of by users to be still grossly inflated. Last month's imports were 21,815 cwt., making a total of 171,485 cwt. for seven months, against 316,141 cwt. in the same period in 1919. American on spot closed at 137*s*. 6*d*.

Valerian has been selling more freely of late. Belgian is offered at 97*s*. 6*d*., and Indian at from 90*s*. to 95*s*. per cwt. on the spot.

Vanillin meets with a small demand at about 65*s*. per lb.

Wax, Vegetable.—Japanese is steady, with spot sales at 110*s*. per cwt. The exports from Japan during May amounted to 53,739 kin, valued at 28.241 yen. During the five months ended May 31 they were as follows :

	1918	1919	1920
Kin	3,165,768	517,221	358,633
Yen	995,309	171,432	194,627

Wormseed.—A limited quantity can be had at 4*s*. 10*d*. per lb.

Essential Oils Market.

The average level of most of the prices quoted last week has been well maintained, but where changes have occurred the tendency is towards lower figures. Eucalyptus oil, however, is decidedly firmer for spot quotations, which have been lower than those coming forward from the source. Japanese mint, pennyroyal, Ceylon cinnamon leaf, and citronella oils have receded slightly; lemon and sage oils are lower. Some dealers in synthetics are not inclined to quote owing to the irregular state of the market. Musk xylol is slightly easier. Aubepine and nerolin crystals are lower.

Anise, Star, is steady, with spot sales of "Red Ship" brand at 4*s*. 4*d*. to 4*s*. 4½*d*. per lb., and afloat at 4*s*. 3*d*. c.i.f.

Bergamot.—The price is nominal in the neighbourhood of 34*s*. to 35*s*. per lb. for 37-38 l.a., although these figures could be shaded for firm business.

Cassia.—Spot 80-85 c.a. has been sold at 7*s*. 9*d*. to 8*s*. per lb.

Cedarwood.—At first-hands the price quoted for American is about 3*s*. 9*d*. per lb., but there appears to be one or two parcels of various grades for which less would be accepted.

Cinnamon.—Ceylon leaf is easier forward, with sellers at 9*d*. per oz. c.i.f., the spot value being 9¾*d*.

Citronella.—There has been practically no demand, and the price on spot for Ceylon is nominal at 3*s*. per lb., although sellers would probably accept slightly under. The c.i.f. price is given as 2*s*. 8*d*. to 2*s*. 9*d*. It is stated that American buyers have come into the market with inquiries, and importers are hoping for better prices. Java oil seems a shade easier, with quotations about 5*s*. 2*d*. on spot.

Eucalyptus has shown more inquiry, and the lowest price is now 2*s*. 8*d*. to 2*s*. 9*d*., with up to 2*s*. 10½*d*. quoted for B.P. oils. We understand that many of the consignments now coming over cost the importer more than the current spot price. Moreover, it is reported that Tasmanian buyers are securing all available parcels at rising prices, in view of a threatened shortage.

Geranium.—There appears to have been some inquiries passing this week. Prices on spot are unchanged for Algerian or Bourbon at 40*s*. to 42*s*. per lb., although 45*s*. is given in some directions. To arrive is about 38*s*. 6*d*. per lb. for Bourbon. Geranium oils are not expected to recede much under present quotations, as supplies are short. In Algeria the production of cheap wines for the French *ouvrier* is said to be yielding better financial results, and until stocks of wine have accumulated in France the distillation of geranium oil in Algeria is likely to be neglected. During the war, alcohol was, of course, used in huge quantities in the manufacture of explosives.

Lemon is lower on spot, with good brands quoted at 5*s*. 6*d*. per lb. up to 6*s*. 6*d*., according to seller. A report from Palermo dated August 12 states: "The market has remained inactive, and the general position is therefore somewhat easier."

Lemongrass.—Cochin is practically as last quoted, but sellers at 9½*d*. have cleared their stocks. American inquiries have been made this week.

Mandarin is nominal at about 58*s*. per lb. on the spot.

Mint is quiet, with spot sellers of Kobayashi-Suzuki at 8*s*. 6*d*. to 8*s*. 9*d*. per lb.

Neroli.—It is stated on good authority that 10,000 fr. per kilo. has recently actually been paid for neroli oil, but this is probably an extreme figure. Quotations have also been received giving 5,000 fr. to 6,500 fr. for pétale and bigarade respectively. The opinion has been expressed that the high prices now being asked and paid are not justifiable, even when the economic conditions governing production are taken into consideration (*C. & D.*, August 7, p. 76). From 1914 onwards the price paid for flowers has been an increasing one at every "fair," and it is said that the high figures reached this year are due in no small measure to distillers breaking away from the syndicate to get better supplies and indulging in competition among themselves instead of paying the price agreed on collectively. French oil on the spot can be obtained at 90*s*. per oz. for pétale and 80*s*. for bigarade, although as much as 110*s*. is mentioned in some directions.

Pennyroyal.—Spanish is easier, with spot sellers quoting 6*s*. 3*d*. per lb.

Peppermint.—The New York "Drug and Chemical Markets" states: "Spot oil is in little demand and rather weak. Waiting for new-crop news holds business in peppermint at a standstill. A New York dealer said: "Buyers generally are holding off, and on the other hand there are persistent rumours of a short crop. Basic conditions are against the maintenance of present values, but stocks are light, and producers in the West may be able to maintain their position." Spot prices name $6.75 for natural and $7.50 to $8.00 for U.S.P. oil." To come forward finest "Wayne County" is offered in London at 40*s*. per lb.

Petitgrain.—Paraguayan is offered at 27*s*. to 28*s*. per lb. c.i.f. London, but very little business appears to be passing.

Sage.—Spanish is lower at 5*s*. per lb. c.i.f. London.

Sassafras is unchanged on spot at 11*s*. 9*d*. per lb. and 11*s*. 6*d*. c.i.f. for natural American.

Tansy.—Importers quote from 40*s*. per lb. upwards to arrive.

Aromatic and Synthetic Chemicals.

Amyl Salicylate can be bought at 9*s*. to 9*s*. 9*d*. per lb. Aubepine on spot is lower at 37*s*. 6*d*. per lb. Bromstyrol is easier at 37*s*. 6*d*. to 40*s*. per lb. Coumarin is

irregular at 31*s*. to 34*s*. per lb. spot and 30*s*. c.i.f. Eugenol is offered at about 22*s*. per lb. for spot. Heliotropine on the spot varies from 27*s*. 6*d*. to 29*s*. per lb. Methyl anthranilate is lower at 30*s*. per lb. for immediate shipment. Musk ambrette is still scarce at 320*s*. to 350*s*. per lb. for spot, but 300*s*. will buy a substitute of good odour; xylol is easier at 38*s*. to 40*s*. per lb. Nerolin crystals are lower at 10*s*. to 11*s*. per lb., according to variety. For Terpineol quotations are unchanged at 6*s*. to 6*s*. 6*d*. per lb. The following arrivals have taken place recently: Amyl salicyl. (Holl.), 2 cs., (Fr.), 10 drms.; citronella (Switz.), 1 cs.; coumarin (Holl.), 304*l*.; methyl anthran. (Holl.), 49*l*.; phenylacetic-aldehyde (Holl.), 1 cs.

English Herb and Essential Oil Crops.

Stafford Allen & Sons, Ltd., send us the following report on their Long Melford herb crops: On the whole, crops this season are turning out fairly satisfactorily, but there has been rather too much wet weather for lavender and some of the perfume-yielding plants.

Aconite.—The demand for English leaves and root is not large, so that the cultivation is unimportant. Our plants, however, have yielded a fair crop.

Belladonna.—The first cut has given quite a good tonnage, and there has been a pleasing absence of the troublesome belladonna beetle. The cost of cultivation, owing to the present high price of labour, makes belladonna a much more expensive crop to grow than in past years, and many small growers who started during the war have found cultivation unprofitable.

Chamomile.—To bring this crop on satisfactorily plenty of sun is required. We have started picking the flowers, and we are expecting a normal supply of oil, the demand for which is also very strong, as all last year's output has been sold for some time past.

Dill.—This crop is showing well, and, like most other crops, will be harvested rather earlier than usual. Nice dry weather is wanted for the satisfactory ripening of the seed.

Foxglove.—This promises to be an average crop, and our leaves will doubtless be up to the usual high standard of potency.

Henbane.—The rain early in June greatly helped the second-year plants, and we had a very good average crop. Flowers were plentiful, but unfortunately of late years the demand seems to have fallen off. The first-year plants are looking well and healthy.

Lavender.—The cultivation suffered badly during the war through want of sufficient attention, but new plantations are promising well, and the younger plants this year were less damaged by winter frosts than in some recent years. To get a good yield of essential oil plenty of sunshine is necessary just before the gathering season. Unfortunately this was lacking this year, and the oil will be very high in price and in very short supply.

Peppermint.—The harvesting has taken place earlier than usual. Our crop is looking exceedingly healthy, and, in fact, is one of the nicest we have had for some time past. The acreage, unfortunately, is very small, owing to labour difficulties. The price of oil will also unfortunately be very dear, owing to the high cost of cultivation. Judging from inquiries already received, there will be an active demand for the English distillate.

Rhubarb.—English root is not in great request, and the cost of cultivation and preparation of the root for sale leaves little profit; we grow only a small quantity now.

Valerian.—Plants look healthy and promise an average supply of good English root.

Wild Lettuce has grown rather slowly this year, but we shall have sufficient for the comparatively small demand.

Java Cinchona News.

There exists in the Dutch Indies an Association for the Advancement of the Interests of Cinchona Cultivation, but, remarks the "Alg. Landbouwweekbl. v. Nederl. Indie," it cannot be said that this Association has shown any signs of great activity during the ten years of its existence. Its chief work has been the conclusion of the quinine contract, and it has consistently neglected to deal with other questions affecting the cultivation of cinchona; indeed, in the opinion of a cinchona planter, it should more correctly be termed the "Association for the Promotion of the Interests of the Quinine Agreement." Now, however, it would seem as if it had decided to adopt a different attitude. A circular has been sent to the members inviting them to attend a meeting, at which a proposal is to be discussed whether moneys should be collected with the object of erecting a quinine experimental institute, and further to investigate the possibility and advisability of quinine being manufactured by the planters. Another point on the programme is the appointment of a delegate and vice-delegate to the Quinine Bureau for the contract year 1921. In this connection it is pointed out that the planters have now an opportunity to demand the appointment of a planter as delegate, a course which hitherto has not been followed. In fact, it is asserted that the nomination of a planter has been consistently avoided; thus for several years an official in the agricultural department acted as delegate. The creation of an experimental institute for the study of quinine, and the proposal to investigate the question of manufacturing quinine on the plantations, is exhaustively dealt with in an *exposé* by Dr. Kerbosch, director of the Government quinine laboratory. In this statement it is pointed out that, notwithstanding its drawbacks, the quinine contract affords many advantages to the planters, and this is solely the result of collective action on the part of the latter. If the contract is not renewed in 1923 the planters will be helpless to oppose the powerful trust of the manufacturers. Consequently it is necessary to investigate what steps should be taken to promote co-operation among the planters, and to strengthen their position as far as possible. At present the cinchona planters, representing a large capital, are compelled to deal with a small number of quinine manufacturers, who, working with a small capital, derive an inordinately large profit. This is due to the fact that they are in a strong position owing to the possession of a good method of manufacturing quinine, and as suppliers of the latter they command the world's market. If the planters take up the matter properly it will be possible for them to undertake the manufacture of quinine, the principal difficulty being to gain a thorough knowledge of the various obstacles to be overcome. Japan has shown that this is possible; the factory erected in that country three years ago has overcome the initial difficulties, and now supplies a satisfactory product. The existing quinine contract is the only bond that holds the planters together. If at its expiration it has been demonstrated that if necessary the planters can themselves undertake the manufacture of quinine, their position in dealing with the manufacturers will be a much stronger one, and it will be the task of the proposed quinine experimental institute to investigate whether, and by what methods, quinine can be produced locally by the planters on each of the large plantations, and also by several smaller plantations participating in a single common plant.

Reduction in German Export Duties.

The Commission attached to the German Ministry of Economies has decided to lower certain of the export dues levied, especially those on exports of chemicals. The proposed changes have been approved by the Minister, but will not be applied until published in the State "Gazette." These export dues are levied in the form of a fixed percentage of the total value of the article exported, and it is stated that the following represent the new rates to be levied. For comparison the old percentage is given in parentheses: Nitric acid, 2 per cent. (5 per cent.); boric acid and borax, *nil* (4 per cent.); potassium, sodium, ammonium iodide, 1 per cent. (3 per cent.); ammonia, 3 per cent. (10 per cent.); aluminium chloride, aluminium acetate, 5 per cent. (10 per cent.); aluminium sulphate, 3 per cent. (10 per cent.); tin oxide, 3 per cent. (10 per cent.); ammonium sulphate, 2 per cent. (10 per cent.); potassium nitrate, 3 per cent. (10 per cent.); copper aceto-arsenate, *nil* (5 per cent.); cream of tartar, 4 per cent. (6 per cent.); tartar emetic, *nil* (6 per cent.); tannic acid, 3 per cent. (6 per cent.); sodium salicylate, *nil* (10 per cent.); benzoic acid, 6 per cent. (10 per cent.); cerussa, *nil* (8 per cent.); barium sulphate, 4 per cent. (10 per cent.); cinnabar, 1 per cent. (2 per cent.); iron oxide, etc., 2 per cent. (7 per cent.); umbra, etc., 2 per cent. (7 per cent.); bronze colours, 1 per cent. (6 per cent.); copper colours, 2 per cent. (6 per cent.); chlorophyll, 10 per cent. (2 per cent.); other colours, etc., 2 per cent. (7 per cent.); eau de Cologne, 1 per cent. (8 per cent.); other perfumes containing ether, 1 per cent. (8 per cent.); hairwashes containing ether, etc., 1 per cent. (8 per cent.); ammonia, liquid, 5 per cent. (8 per cent.); German camphor, 2 per cent. (7 per cent.); natural and artificial mineral waters, 3 per cent. (10 per cent.); pepsin, 3 per cent. (8 per cent.); manganese dioxide, *nil* (3 per cent.).

Wool Fat from South Africa.

In continuation of the investigation of crude wool fat manufactured in South Africa a trial consignment of about 2 tons of the material was recently forwarded to the Imperial Institute for sale. This consignment was disposed of at 50*l*. per ton to a firm of manufacturing chemists, who have reported that it is equal to the crude wool fat produced in the United Kingdom, and quite suitable for the preparation of lanoline for pharmaceutical purposes. They have offered to purchase a further consignment of 5 tons.

Correspondence

Letters for this section should be written on one side of the paper only. The writer may adopt an assumed name for purposes of publication, but he must in all cases furnish his real name and address to the Editor.

Training of Apprentices.

Sir,—The scheme put forward by Mr. J. L. Hirst in his paper "The Four Thousand Hours" (*C. & D.*, July 24, p. 100) is an excellent one for a better method of apprenticeship, but in these days the choice of a profession so often turns on the sordid consideration of £ *s. d.* The average parent expects his children on leaving school and commencing work to bring home wages, and the average employer when taking an apprentice considers that his training and tuition are in lieu of wages, otherwise he would employ an assistant with a knowledge of the work, who is competent from the day of engagement. The parent who is prepared to stand the expense of three or four years' further education in addition to school expenses is more likely to place his child in a profession which holds out some hope of a better return and standing than pharmacy can offer. The chief drawback to the proper initial training of pharmacists has been that apprenticeship was not a *sine quâ non.* In the case of a trade union membership is restricted to men who have served their time to the trade, but not so in pharmacy; and this principle has been carried even further by our own Council in their recent attitude to the much-discussed by-law, by the passing of which they have virtually admitted that their own Qualifying examination is not really necessary either. What are we to anticipate in the future? Will the four thousand hours be insisted upon, or will they be on a par with the three years' practical work, proof of which the candidate was expected to show?

Yours faithfully,
Quatre Mille. (91/9.)

Proprietary Medicines Bill.

Sir,—I wonder were you right in your views that this Bill will harm the trade? In my opinion, it enhances the trade value of all existing patent medicines. When you put men or medicine on a register you consecrate them as being a thing apart and above, endowed with aspirations and privileges beyond what intrinsic merit can claim. You also give that State recognition to a system of treatment which every Government stamp has hitherto formerly repudiated.

Dublin. J. C. McWalter.

Bristol Manufacturer (14/8) in the course of a letter condemning the principle of expropriating the property of proprietary medicine manufacturers, writes: "It is just as stupid as to want to destroy the railway system because a few accidents happen, or to abolish the medical profession because doctors occasionally poison people." Our correspondent supports the idea of a petition to Parliament against the Bill.

M. B. (16/8), referring to a peer's statement that phenolphthalein is one of the trade-names for acetanilide (*C. & D.*, August 14, p. 53), foreshadows the following conversations (among others) so soon as this exclusive information should reach the common herd:

Boy (aged six): I don't want any castor oil, mummy.
Mother: You won't get any, darling; only a lot of silly people call this castor oil. It's really chocolate.

Medical Student (in the absence of house surgeon, to accident case just brought into hospital): My dear fellow, you're mistaken when you think you've been knocked down by a charabanc. The fact is a flea stood on your pet corn and has caused phlebitis.

Anti-humbug (9/7) writes: "A clause should be added to the Proprietary Medicines Bill to protect persons suffering from incurable diseases from being charged exorbitant fees by medical men. A doctor can frequently do less for the patient than a trained nurse."

The London Prescription Pricing System.

Sir,—Mr. Hammond's claim (*C. & D.*, August 14, p. 74) that the method of pricing prescriptions which is termed "The London Simplified System," merely for the want of a better name, was put forward by him at Sheffield in September and October 1919, is scarcely borne out by the facts. First, I claim no originality, as it was established as a principle in the National Insurance system in 1913, and was previously stated in the *Chemist and Druggist Diary*, 1912. In certain respects it dates back earlier, as I have found elements of the system dated 1870. So much for its originality. In Mr. Hammond's paper, second edition, in October 1919, he says, "To the retail price of the ingredients add the price of the container and the price of time and establishment charges." This is the reverse of our system. A costing system means that each article is priced out to bear the necessary time and establishment charges, that is the retail price. The professional fee is something beyond. None of the twelve Metropolitan Associations considered Mr. Hammond's paper in any shape or form. The system we call the London one was established out of the necessities of the hour. It has apparently come to stay because it presents the first element of success, namely, simplicity; and secondly, it has the sanction of experience both in Continental and Insurance practice. The only novelty it contains is that each item is priced out for the profit which is also suggested as the proper retail selling price.

The Editor.
"The London Chemists' Retail Price List,"
16 Priory Gardens, London, N. 6.

Sir,—I was interested in Mr. H. B. Hammond's letter (*C. & D.*, August 14, p. 74) regarding your pricing of prescriptions by the so-called "London Simplified System." Being anxious to see what the special system really is, I procured a copy of the London List and, to my surprise, the method appears simply to be pricing out the ingredients at a list or retail price and adding a compounding-fee. I am somewhat surprised that this should be designated the "London Simplified System," since the London List has only been in existence less than twelve months, whereas I have been advocating this same system publicly ever since the publication of my first pamphlet on chemists' pricing some seven or eight years ago. Can it be that the London chemists were unaware of the existence of such a system previous to their publication of it? I believe my books and letter files would prove this different.

Yours faithfully,
Charles Philip,
Publisher of "Philip's Standard Retail Price List."
258 Pitsmoor Road, Sheffield.

The Lure of the Orient.

Sir,—After having been duly relegated to my position among the second-raters, native dispensers, and pharmaceutical flotsam and jetsam found abroad, I had not thought it worth while to add any further remarks to this correspondence, being content with my knowledge of facts gained by experience; but the letter of Mr. Denys Bailey (*C. & D.*, August 14, p. 74), written by a man on the spot, and evidently penned before the issue of the *C. & D.* containing my first letter had reached him, is a very refreshing confirmation of most of the points I referred to. The reason why an assistant does not break the agreement when he finds things not as they should be is obvious. Very few men are blessed with a large bank balance, and if his action did not land him into legal proceedings he would be left without employment in a strange country, or else have to put down a considerable sum for passage home—neither of which he can afford, and the firm knows it. You will note that, although I was laughed at on the question of hours, none of your correspondents has informed us how the European residents obtain their medicines outside the hours of nine and five. Either they go without, which is doubtful, or the pharmacy is left to the mercy of native compounders, which is still more doubtful, or . . . ! Now, who does tackle the late work, gentlemen, please?

Yours faithfuly,
Pre-war Colonial. (14/8.)

Subscribers' Symposium.

Warning.

Lennon, Ltd., Lafone Street, London, S.E. 1, ask us to warn London wholesale houses against supplying goods to messengers on order-forms bearing the company's name. Some order forms have been abstracted from the company's office and are being used to obtain goods to be charged to their account. Messrs. Lennon ask that wholesale houses to whom orders purporting to come from Lennon's are presented should confirm them by telephone.

What is Syr. Hypophos.?

K. and A. (27/7), referring to the reply to an inquiry as to the price for dispensing a prescription (*C. & D.*, August 7, p. 80), points out that it was "syrup. hypophos. B.P.C." that was ordered and used, not the compound syrup. This point, our correspondents add, has arisen several times in their experience, and some assistants contend that the compound syrup is always intended when "syrup. hypophos." is ordered. In the present case, as liq. strych. was ordered in the prescription, the simple syrup was dispensed. "We should be interested to know what is the custom in other pharmacies when the compound syrup is not clearly indicated," add our correspondents.

Misplaced Indignation.

In a pharmacy in a poor quarter of Birmingham a show of Capsol dyes was made on a shelf near the entrance. Some children attracted by the display watched their chance and "pinched" a box of helio. They sat down on the pavement close by and examined their capture, opened the little square packets, and started sucking the contents, evidently thinking the Capsol was a kind of jelly confection. Presently they had to explain to mother how it was that their hands, faces, and clothes had assumed a purplish hue. Mother, in great indignation, rushed off to the pharmacy and in typical Birmingham style and language accused the pharmacist of having placed temptation in the way of the children, urging further that if anything happened to them he would be guilty of having poisoned them. The pharmacist, in his turn indignant because the woman, instead of expressing regret or making apology, endeavoured to place the blame and consequences on him, made things worse by suggesting that the community would suffer no hardship, but would, on the contrary, gain if such children departed this life. The concluding words and glances must be left to the imagination. *C. W. Kemsey-Bourne.*

Legal Queries.

H. L. W. (16/8) is sub-tenant of a lock-up shop in a provincial city, at an annual rent of 67*l.* The rent of the whole premises, of which the shop forms part, is 92*l.*, the tenant paying the rates. "H. L. W." has been given notice to quit on or before February 1 next, and asks whether he is protected from ejectment by the Increase of Rent Act, 1920. [Since it is obvious that the "standard rent" of that part of the premises which is occupied by "H. L. W." is below 78*l.*, he will be protected by the Act from ejectment until June 24, 1921. In the meantime he can be dispossessed only by an Order of the County Court made upon one of the grounds specified in the Act.]

A. W. W. (11/8) is tenant of a lock-up shop in a country town, under a lease which will terminate ten years hence. Is he at liberty to sub-let the shop, and, if so, is he entitled to charge a higher rent than that payable under the lease? ["A. W. W." is entitled to sub-let without restriction unless the lease otherwise provides. If either the rent of the shop, exclusive of rates, or the rateable value, on August 3, 1914, did not exceed 78*l.* a year, he is prohibited, until June 24 next, from increasing the rent beyond the limits permitted by the Increase of Rent Act 1920. If the net rent upon the date in question exceeded 78*l.*, "A. W. W." is entitled to increase the rent, when sub-letting the shop, without restriction.]

Miscellaneous Inquiries.

When samples are sent particulars should be supplied to us as to their origin, what they are, what they are used for and how. We do not undertake to analyse and report upon proprietary articles nor to publish supposed formulas for them.

W. M. (13/7).—Recovering Iodine from Biniodide Solutions.—We think that the following process, devised by Mr. W. Clifford, chemist to the Wolverhampton Sewage Department, for utilising waste Nessler solution could be adapted for your purpose:

Neutralise with dilute sulphuric acid and add iron filings. Metallic mercury (which can be recovered) and ferrous iodide are produced. Next add to the ferrous-iodide solution sodium or potassium carbonate in slight excess, warm, and set aside until the iron is precipitated. Filter, evaporate, and crystallise the alkaline iodide.

T. D. (7/8).—Prescription Pricing.—The prescriptions you send, priced according to the London Simplified System, are as follows:

I.			II.		
Thymol grs. 3 ...	...	1·0	Hydronaphthol ʒp.	...	6·0
Saccharin grs. 8	...	7·0	Tr. Krameria ʒij.	...	2·0
Ac. Benzoic grs. 40	...	2·0	,, Myrrh. ʒj. ..	...	1·5
Ol. Gaultheria ♏ 25	...	8·0	Ol. Menth. Pip. ♏ 15...		3·5
Ol. Menth. Pip. ♏ 20 ...		5·0	,, Gaultheria ♏ 10 ...		3·0
Tr. Fol. Eucalypt. ♏ 20		1·0	Saccharin grs. iij.	...	3·0
Spt. Vini Rect. ad. ℥iij.		46·0	Spt. Vini Rect. ad ℥iv.		58·0
Container ...	...	3·0	Container ...	...	3·5
Dispensing Fee	...	9·0	Dispensing fee	...	9·0
6/10		82·0*d.*	7/6		89·5*d.*

In both cases the rebate is deducted from the spirit charge. We shall be glad if subscribers will in all cases send us particulars of the charges which their customers disputed.

Trent (7/8).—Ormolu which has turned black cannot very well be restored while it is on the furniture. It requires to be detached, cleaned with acid, and re-lacquered or gilt before replacing. It is possible that some improvement could be effected by cleaning with soap and water, and when dry painting with gold paint. If however, the furniture is valuable this would detract from its worth.

F. J. N. (7/8).—Manufacture of Mackintosh.—Rubber solution is painted on the fabric used for mackintosh manufacture, and the rubber is afterwards vulcanised to take away the sticky property of pure rubber.

Retrospect of Fifty Years Ago.

Reprinted from "The Chemist and Druggist," Aug. 15, 1870.

Legal Interference.

A correspondent—"a chemist and dentist"—in our June number sounded a rather alarming note when he called attention to certain clauses in the new Medical Act (Amendment) Bill, which he asserted would prevent any but qualified dentists from undertaking the extraction of a tooth even except with the prospect of a heavy penalty. The Bill is now withdrawn and the danger passed; but as another will probably be brought forward next session, it will be only wise to look carefully into these matters, lest, in their anxiety to elevate the status of the profession, the framers of the Bill should steal a march upon a body of men who really do great service to the public in the provinces by undertaking these simple operations at a more moderate price than could be expected from the country surgeon. At the same time, we do not see that there was any immediate danger. The Act of 1858 distinctly stated in the 55th clause that "Nothing in this Act contained shall extend, or be construed to extend, to prejudice or in any way to affect the lawful occupation, trade or business of chemists and druggists or dentists, or the rights, privileges, or employments of duly licensed apothecaries in Ireland."

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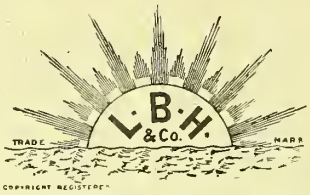

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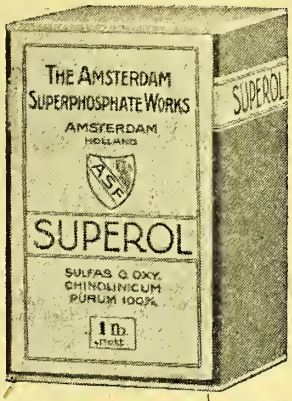

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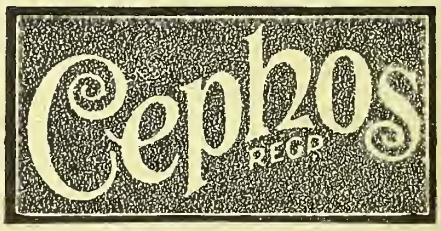

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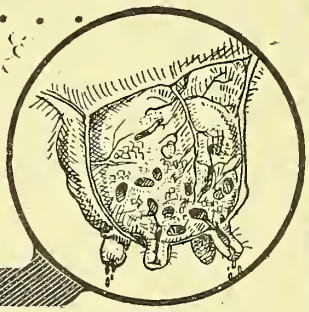

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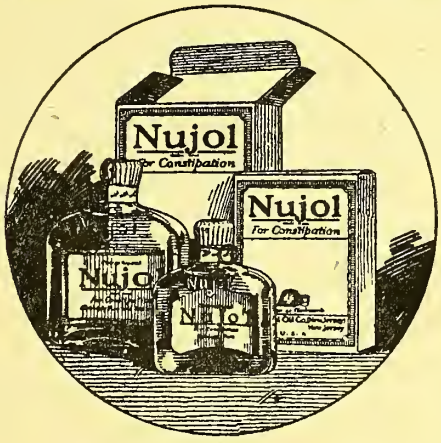

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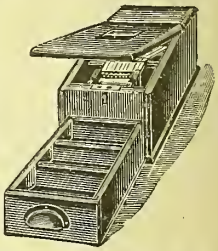

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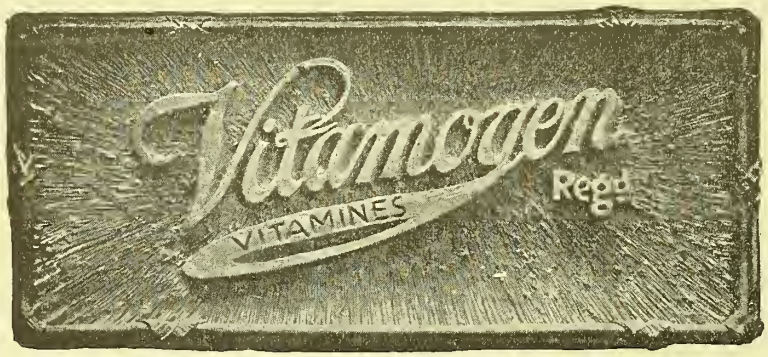

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Prepared only from the Finest East-Coast Barley, combined with the best Norwegian Non-Freezing Cod Liver Oil.

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MALVERN WATERS

(Bottled only at St. Ann's Well, Malvern)
BRITISH and BEST of TABLE WATERS.

BURROW'S MALVERN WATER (still). The Purest Natural Spring Water.

BURROW'S MALVERN WATER (sparkling). The Natural Water simply Aerated.

"Malvernia" "MOLLY"

An Alkaline Sparkling Table Water, invaluable in cases of Gout, Rheumatism, Acidity, Stone, Gravel & Kidney Complaints.

Mixes well with Wines and Spirits.

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SELLS FREELY & READILY

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An Infallible Remedy for GOUT, RHEUMATISM, ECZEMA, and SKIN AFFECTIONS.

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4-oz. tins	1/-	8/-
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Bottles	2/6	20/-

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SOLD EVERYWHERE.

Manufactured by
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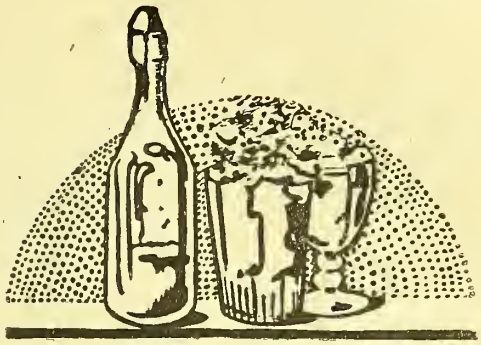

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Soluble Essences are of the finest quality and being extremely concentrated are most economical

Lemon	Ginger Ale
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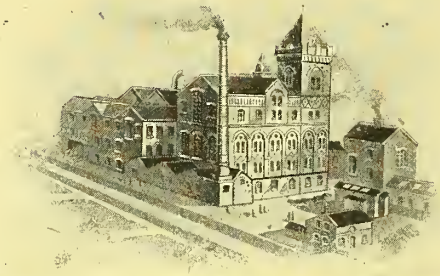
"John  Bull"
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Does not separate.

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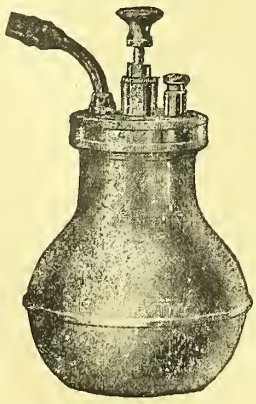

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Advertising Matter and Doctors' Samples free.

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TO USERS and DEALERS in METH. SPIRIT and SPIRIT OF WINE.

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(VINUM AURANTII B.P.) Prepared in strict accordance with the Formula of the British Pharmacopœia. (Wholesale only.)

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Tonic, Restorative, Digestive Wine.

Known throughout the World, and prescribed in all cases of ANÆMIA, DEBILITY, and CONVALESCENCE, to Young Women, Children and the Aged.

DOSE: One Wine-glass after the two principal Meals.

Recommended by—
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"For more than thirty years St. Raphaël Wine has been exclusively prescribed, with success, in the Paris hospitals as a pure tonic, by eminent physicians, such as Magendie Rostan Chomel, Velpeau, Requin, Monneret, Trousseau, Grisolle, Laënnec, &c."—*Union Médicale*, May 8 and June 12, 1873.

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Natural Fruit Saline.

THE BEST SELLER.

This preparation, our latest Saline, made by our special process, without **Sugar** or **Saccharine,** is a unique Saline. It is strongly effervescent and delightfully palatable, making a bright, refreshing draught which acts as a mild but very thorough aperient, anti-acid and liver stimulant.

Bishop's Natural Fruit Saline is taken regularly with pleasure and safety by men, women and children all the year round. This steady demand makes it a profitable winter line. It keeps perfectly in all climates.

The Wholesale price is **20/-** per doz. On £5 lots, discount **10%**, and carriage paid.
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This ensures a profit of **9d.** per bottle to the chemist.

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TONIC SALTS

A COMBINED NERVE TONIC AND BLOOD PURIFIER.

Invigorates and Purifies the Whole System.

Attractively packed.
Shows 50% Profit to you.

Price in gross lots, per **100/-** gross.
Carriage Paid.
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A scientifically prepared Effervescing Saline, possessing medicinal properties superior to the ordinary Health Salts

A FREE TIN

will be sent for your personal trial on receipt of application on letter heading.

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4 oz. Size Retailed at 1/-

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M. I. M. will do this for you—customers tell us the sales are "wonderful," and our repeat orders prove that this statement is not an exaggeration.

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"MADE IN A MINUTE."

LEMONADE POWDER.

Makes Half-a-gallon of

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NO SUGAR REQUIRED.

Packets **4½d.** *each.*

This small reproduction of one of our Window Bills tells the story of M. I. M.'s success.

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M. I. M. is most attractively packed —the appearance helps to create sales.

Let us send you a trial gross. They will not become "dead stock."

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Now Obtainable

This reliable family Saline—so long and so favorably known throughout the Empire—is now obtainable. Chemists and the trade in general can now have orders filled promptly.

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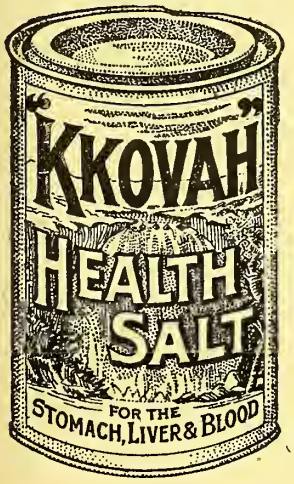

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Makes you fit—keeps you fit

Probably there is not one in ten of your customers who does not know "Kkovah."

Many of them are regular users, but obtain their supplies from other shops simply because you don't stock it.

Isn't it worth while taking advantage of this "ready-to-hand" demand, and so secure the extra profit without any trouble to yourself or your staff.

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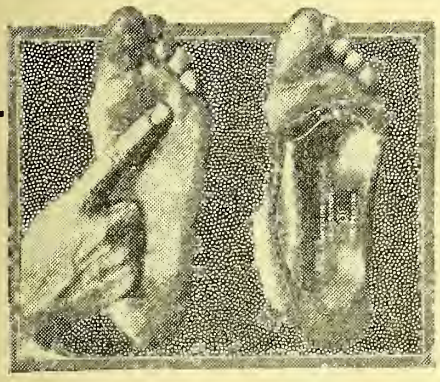

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that advertised goods have the best sales, SCHOLL Foot Comfort Appliances and Specialties are widely and constantly advertised in the leading Daily, Weekly and Monthly Press.

They are also largely recommended personally—by wearers—by Doctors—by Nurses.

Dr Scholl's Foot Comforts

are in ever-growing demand. It is significant that SCHOLL Dealers everywhere increase the extent of each repeat order. Window and inside displays invariably lead to profitable inquiries—particularly when coinciding with one of our frequent whole-page advertisements. By the way, did you see the fine whole page we had in the "*DAILY MIRROR*" of July 6th? This is only one of our many newspaper announcements.

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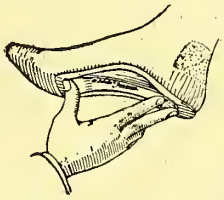

Dr. Scholl's foot eazer eases tired, aching, weak feet. Corrects flat or weak foot, etc. 10/6 per pair.

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Containing Sulphur B.P., Cream of Tartar, Refined Sugar, Orange Flavoured, Guaranteed Pure.

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Packed in 7-lb. Counter Boxes **3/-** per lb.

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An Ideal Antiseptic Deodorant

No. 1 - 7/6 per gallon. DISINFECTANT

Contains 20% more Cresol than any other similar preparation. Surgical Instruments can be safely sterilised and disinfected in a few seconds without danger of corroding by using **"Detergol."** Used by the Medical Profession for fourteen years.

"DETERGOL" No. 2 - - 4/6 per gallon.

For ordinary disinfecting purposes, miscible in water.

Carriage Paid on orders of £5 and upwards in the U.K.

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Gold Medal Awarded, Paris, 1902, by the Société d'Hygiene of France

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Has no rival on the market, is well advertised, pays a good profit, quality guaranteed. The MARVEL is returnable for exchange if found defective and reported promptly.

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Hospital pattern	per doz. 28/-	60 seconds, lens front ...	per doz. 38/-
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Each Thermometer in Metal Case.

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No. 1008 House Thermometer, assorted colours, 8 in.	per doz. 12/6
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Lactometer (milk tester), in card case, complete with directions for using	,, 14/-

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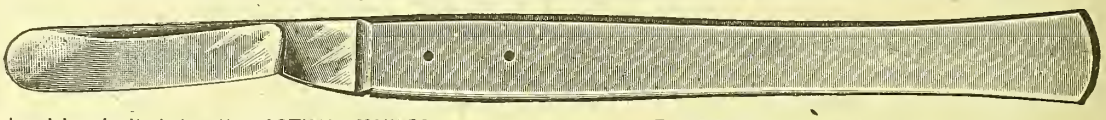
"INTRINSIC" Brand (Highest Grade) SURGICAL KNIVES and SCISSORS.



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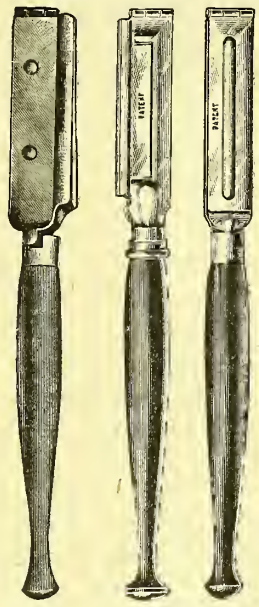

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No. 1. For Gillette Type Blades
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SAFETY RAZORS
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Fancy Leather Goods

WHOLESALE and EXPORT only

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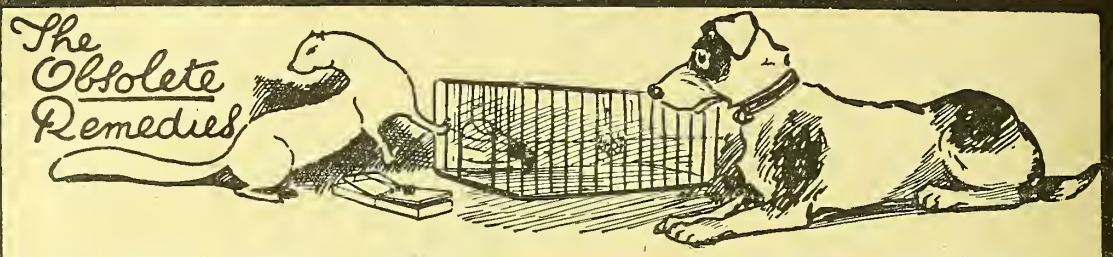
SHEEP DIPS Poisonous and Non-Poisonous of all kinds.
DISINFECTANT SOAPS of all kinds.
Sole Proprietors and Manufacturers of
PHENOID (formerly called PHENYLE).

DISINFECTANTS of all kinds, including LYSOL SUBSTITUTE and High Co-Efficients.

Largest Makers of Non-Poisonous Sheep Dip in the World.



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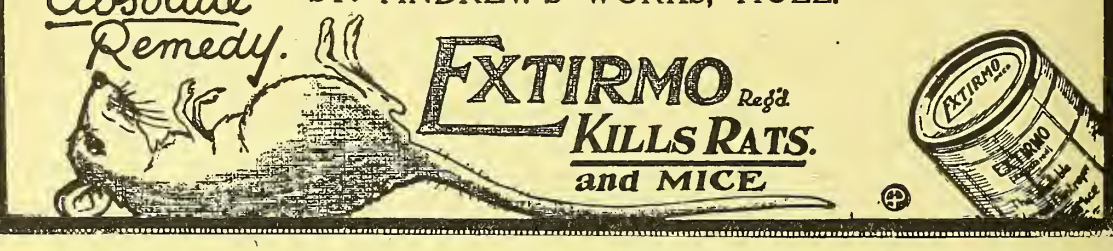

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Outfits: Price **3/6** each: **32/-** doz.
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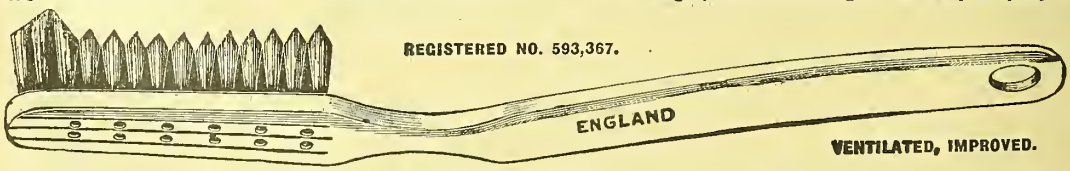
When not in use, a Tooth Brush should not be allowed to remain wet, or it becomes offensive. The advantage of this Brush is—it can be hung up to drain, allowing the air to dry and purify it.



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The only dye giving a natural gloss to the hair.
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Write for quotations.
A wide, long band, sticky on both sides.
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This popular article is largely advertised and stocked by all Wholesale Houses. Trial Size 8d., per post 10½d. 1/4 size, per post 1/7; 2/6 size, per post 2/9; 3/9 size, per post 4/3; 8d. size 6/- doz.; 1/4 size 12/- doz., 2/6 size 24/- doz. 3/9 size, 36/- doz.
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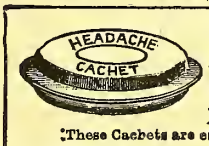

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4/- DOZ 6d EACH PATA 43% PROFIT
puts 100% P.A.T.A. profit in your pocket for just handing it over the counter. Our ads. in the press do the pushing and the show material brings them into the shop.
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6 DOZEN & 1 DOZEN BONUS CARR. PAID AT ONCE.
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Show these to your lady customers.

The cost of Straw Hats and all Fabrics being so high, there is a big demand for

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GLOSSY SERIES supplied if desired. Special NON-INFLAMMABLE SERIES for Export.

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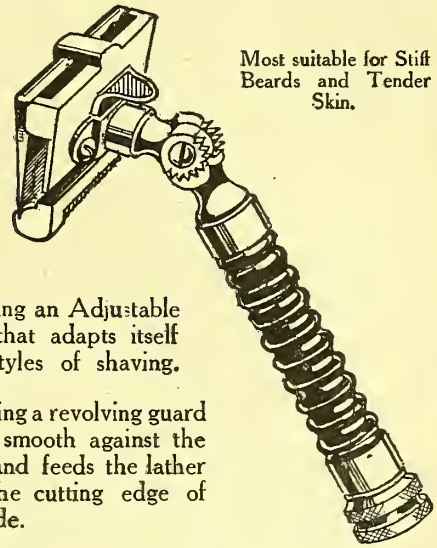

Most suitable for Stiff Beards and Tender Skin.

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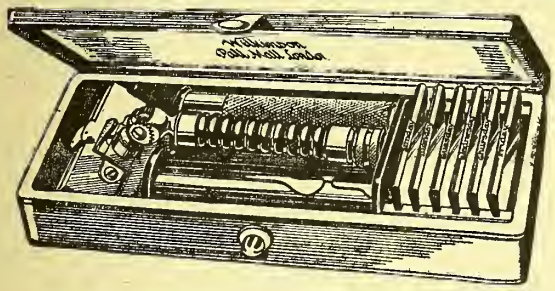

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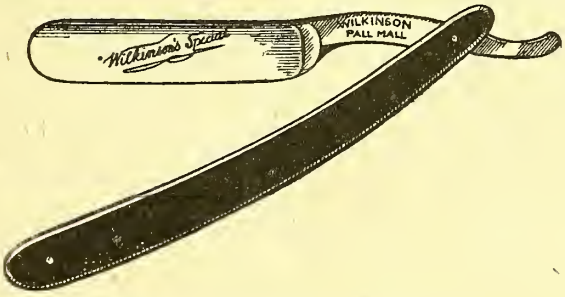

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1/20 12-CARAT GOLD FILLED

AND

1/30 12-CARAT GOLD FILLED

THE CHEMIST AND DRUGGIST SUPPLEMENT

42 CANNON ST.
LONDON, E.C.4.

AUGUST 21, 1920

This Supplement is inserted in every copy of The Chemist & Druggist

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The clerical work in connection with the posting of spare copies of the Coloured Supplement week by week has increased to such an extent that we have been compelled to reorganise our system of distribution. Our readers will please note, therefore, that, in future, instructions can be accepted for not more than six successive issues of the Supplement at a time, and that in every case

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TWO Enamelled Water-jacketed Pans, about 40 gallons e one iron ditto about 12 gallons; fitted connecting l and circulating hot-water boiler complete; new condition; the lot, or would separate. Apply 136/37, Office of this Pap

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NCS.—Profitable General Retail, with Photo; main street; well stocked; low rent; health sole reason for disposal; ent opportunity for an energetic man; full particulars on ation. "X." (138/23), Office of this Paper.

ANCH Business, in the suburbs of seaport town on the South Coast, for Disposal; well-fitted lock-up shop, on a corner site; good Dispensing practice, capable of large ex- n; splendid opportunity for an energetic and capable Junior d up a sound and profitable business in a good-class neigh- ood; good reasons for disposal; price at the valuation of and fixtures only. Replies, 138/27, Office of this Paper.

MISTS, old-established, N. London; corner shop; on important 'bus and tram route; rent only £65; part sub-let ntist, etc., at profit rental; trade £25 weekly; bargain at including stock and fixtures. Fleok, 11 Adam Street, hi, W.C. 2.

Sale (immediately) on easy valuation for cash, the whole t a Chemist's stock, Specie Jars, and gold-labelled Shop s; good opportunity for man commencing business. Apply of A. Green, "Bella-Vista," Wakefield.

of the most successful Retail Businesses in Yorkshire; eturning £9,000 annually; no N.H.I.; Wines and Spirits ; good lease, main position; only those with proved, ry capital £6,000 to £7,000 treated with; suit two rs. Apply "W. B." (133/39), Office of this Paper.

ASANT DEVON TOWN.—Good-class Cash Dispensing Busi- ness, in main street; spacious shop, and very good living modation; returns about £900 per annum; good oppor- for smart Pharmacist to acquire a good business at a easonable price. Apply The Association of Manufacturing sts, Ltd., 31 Kimberley House, Holborn Viaduct, London,

PRIETARY Article for Sale; nasal appliance cure for Catarrh; absolutely unique for immediate and lasting effect; onials from well-known people; rights, trade-marks, etc., l countries excepting America, Canada; with enough stock ,000; immediate turnover £15,000. Principals only write. . Cox & Co., 60 Chancery Lane.

HEMIST, who has to vacate premises on September 29th, wants offer for stock and fixtures; good condition; come iew; or advertiser would rent or buy house and shop; suit- itch for the business. Bell, Chemist, Rugby.

PARTNERSHIPS.

. for 50 words or less ; 6d. for every additional 10 words or less, prepaid.

dvertiser may, if preferred, have replies addressed to this fice, and forwarded on payment of an additional charge of 1/-.

TNER.—Scottish Chemist wants active Partner to under- take management; three Assistants kept; turnover £155 ; or energetic Manager seeking succession; good organiser; n methods essential; state age, if married, business experi- class of trade accustomed to, financial standing; unusual unity; strictly confidential. Apply 136/32, Office of this

TO LET.

P and Dwelling-rooms over, near market in High Road, Balham, S.W.; frontage 19 ft., depth 39 ft. (about); to let years' full repairing lease; rent £450, or £300 and £2,000 m. Apply Messrs. Tippetts, 11 Maiden Lane, Queen Street,

AGENCIES.

6s. for 50 words or less ; 6d. for every additional 10 words or less, prepaid.

The Advertiser may, if preferred, have replies addressed to this Office, and forwarded on payment of an additional charge of 1/-.

SOUTH AFRICA.—Gentleman, 25 years in business there, is open for Sole Agencies in Drug, Surgical Instruments, Photo Goods, and other allied lines; returning to South Africa in October or November. P.C.B. 5/23, Office of this Paper.

WEST AFRICA.—Advertiser, who has had over seven years' service in Government Department in West Africa is now returning there as a free lance, and desires to take up a few Agencies for first-class British firms; houses manufacturing Chemists' fancy goods especially appealed to. Apply 136/31, Office of this Paper.

ESTABLISHED and well-known live firm, actively represented, are prepared to act as sole selling Agents or Distributors for specialities in Druggists' Sundries of superior quality and manufacture; a complete and modern sales and advertising staff provide a unique opportunity for makers of specialities possessing merit, to market such goods to the very best advantage. Please address in first instance to 5/26C, Office of this Paper.

BUSINESSES WANTED.

6s. for 50 words or less ; 6d. for every additional 10 words or less, prepaid.

The Advertiser may, if preferred, have replies addressed to this Office, and forwarded on payment of an additional charge of 1/-.

LONDON, 20 to 30 miles out.—Pharmacist requires Business, with returns about £3,000 to £4,000, in healthy locality, with garden and good house accommodation. Replies, treated in strictest confidence, to "Ricardo" (1/18A), Office of this Paper.

SCOTLAND.—Wanted, good Scotch Retail Business, in country or country town; no objection to good Branch or neglected Business; particulars will be treated in strict confidence. Apply 138/15, Office of this Paper.

ADVERTISER, with necessary capital, wishes partnership, or would purchase entire goodwill of genuine, established Pro- prietary Article, such as Toilet, Medicinal, or Domestic Speciality, or Patent Medicine for Drug or allied business; sample, full par- ticulars, net profit covering several years, turnover, outlet, in confidence. Apply 136/320, Office of this Paper.

BUSINESS wanted in healthy locality, town or country; turn- over about £3,000; Chemist thinking of retiring invited to correspond confidentially, with view to transfer at convenience. "Hygiene" (135/2), Office of this Paper.

CHEMIST wishes to purchase sound Business in South Wales; terms cash; state net profits, etc., in confidence. "Cymro," c/o Messrs. Wright, Layman & Umney, Ltd., 44 to 50 Southwark Street, London, S.E. 1.

DRUG STORE required; North-East Coast preferred; suitable for unqualified man; shop, with house; neglected business, in good position, not objected to. Apply, with full particulars, to H. E. P., 32 Petterill Street, Carlisle.

REQUIRED, at early date, genuine old-established Light Retail and Dispensing Business (one Assistant); good house, with garden; on main line; easy distance of Town and South Coast, Hants. 35/308, Office of this Paper.

Price-lists, trade circulars, samples, and printed matter can in no case be forwarded, the Box numbers being intended exclusively for specific answers to particular advertisements. The Publisher reserves the right to open and refuse to forward any communications received which he may consider contrary to this rule

SITUATIONS OPEN.

RETAIL.

6s. for 40 words or less; 6d for every additional 10 words or less, prepaid.

The Advertiser may, if preferred, have replies addressed to this Office, and forwarded on payment of an additional charge of 1/-.

BECKETT HOSPITAL AND DISPENSARY, BARNSLEY.
LADY PHARMACIST required at the above Hospital, duties to commence the third week in September. Applications, stating age and qualifications, together with copies of three recent testimonials, to be sent to the undersigned on or before Saturday, 28th August.
Salary £170. The appointment is a non-resident one.
HERBERT F. RUTHERFORD,
Secretary.

BRISTOL.—Experienced Assistant wanted; accustomed to high-class Retail and Dispensing; good Salesman and Window-dresser, and with knowledge of Photo goods; kindly state age, height, previous experience, and salary required (outdoors). Matthews, The Mall, Clifton, Bristol.

CITY.—Wanted, early September, smart, unqualified Assistant; good Dispenser and Window-dresser; easy hours; no Sunday duty. Full particulars as to age, salary, experience, etc., to Manager, Vines & Froom, 16 Aldersgate Street, London, E.C. 1.

EAST DEREHAM.—Wanted, Junior Assistant for good-class country business; knowledge of Photography; please state salary required and references. Edward Peck, Chemist, East Dereham, Norfolk.

FOLKESTONE.—Wanted (at once), good Counterman and Dispenser for best-class Pharmacy till end of season. Call or write, Mr. Curtis, 18 Bury Street, British Museum, W.C.

HARROGATE.—Wanted (at once), Junior Assistant for Light Retail and Dispensing business. Apply, with full particulars as to salary, etc., Leo Benjamin, 57 Cold Bath Road, Harrogate.

HULL.—Elderly qualified Assistant required; easy hours; light duties; permanency. State age, salary required, to "Hull" (136/120), Office of this Paper.

HULL.—Wanted, Assistant, about 21, outdoors, in good-class Retail and Dispensing business; two kept. Apply, stating age, height, salary required, and references, to Metcalfe & Son, Pharmacists, Whitefriargate, Hull.

LANCASHIRE.—Qualified Manager, with Optical experience, required to take charge of a progressive Light Retail business situate in the centre of a manufacturing town; good opening for a live man. Apply "Lancashire" (136/12), Office of this Paper.

LEAMINGTON.—Assistant (indoors), chiefly for Dispensing. Apply, with usual particulars, J. Price, 42 Bath Street, Leamington.

LONDON, W.—Gentlemanly Assistant required at once; knowledge of French preferred, but not essential. Full particulars to Central Pharmacy, 11 Shaftesbury Avenue, Piccadilly Circus, London, W. 1.

LONDON, W.—Competent Assistant required; immediate vacancy; one accustomed to Dispensing preferred. Rouse & Co., Wigmore Street.

LONDON, W.—Manager and Junior wanted for West-End business of high standing. Apply, stating age, experience, and salary required, to J. Robt. Walker, at 4 Market Place, Cockermouth.

MANCHESTER.—Wanted, two qualified Assistants, one elderly; N.H.I. Dispensing and cash Retail; working-class district. Full particulars 135/31, Office of this Paper.

MIDLANDS.—Unqualified Assistant required; must be an excellent Counterman and Dispenser; quick cash business; permanency. Apply "Mid" (136/1200), Office of this Paper.

NEAR ROTHERHAM.—Junior Assistant required September 27th, for about nine months; usual Counter and Dispensing business; colliery district; outdoors. Apply, with usual particulars, to Chemist Department, Denaby Main Ind. Co-op. Society, Ltd., Strafforth Terrace, Denaby Main.

RHYL.—Wanted, early in September, experienced, unqualified Assistant; must be of good address; outdoors; easy hours; good references indispensable. Apply, stating salary and experience, to Ashfield, Pharmacist.

WEST END.—Junior Assistant or Improver required, in Se tember, for high-class business (indoors). Kindly sta particulars as to experience, age, height, and salary required, M. Burden & Co., 78 Duke Street, W. 1.

ASSISTANT, unqualified, required for a good-class Dispensi and Retail. Apply, in first instance by letter, to Alfr Allchin & Co., 28 Englands Lane, N.W. 3.

ASSISTANTS, unqualified, wanted for September 20th; goo class Retail and Dispensing with Photography; outdoor Usual particulars and salary required to "X. Y. Z." (9/9 Office of this Paper.

ASSISTANT Dispenser (male) wanted, to make Pharmaceutic Preparations and assist in Dispensing; Minor qualificati of the Pharmaceutical Society essential; salary £4 per week, wi luncheon and tea. Applications must reach the Dispenser, Mary's Hospital, Paddington, W. 2, not later than 28th August.

ASSISTANT; unqualified; age about 25; must have sou practical knowledge of Photographic Salesmanship, Develo ing, and Printing, Kodak system, also competent nt Count and Stock; state fullest particulars as to experience, capabilit salary expected, when disengaged; send photo. Chater, Chemis Watford.

ASSISTANT (male) required, for September 13th, in go middle-class business, for Counter and Dispensing; outdoor state age, height, and salary required; give experience a references in first letter; replies not answered in 3 days decline A. Middleton & Son, Lister Gate, Nottingham.

COMPETENT Temporary Assistant (September 6th to 25th), Photographic work and Counter; outdoors; short hour no Sunday or holiday work; state salary, age, references, a experience; replies not answered in 3 days declined with than Phillips, Chemist, Axminster, Devon.

JUNIOR Assistant wanted September 1st for quick gene Retail; no Sunday duty; outdoors. State usual particula with references, to Fresson's Drug Stores, Stafford Stre Longton, Staffs.

JUNIOR or Improver wanted for good-class Store Chemis hours 9 to 7.30, Wednesdays 1, Saturdays 9 p.m.; no Ba Holiday or Sunday duty; salary commencing 45s. per we Apply by letter to "L. C.," 204 Portland Road, S.E. 25.

LOCUM wanted; active and reliable; take charge one we beginning August 30th; Insurance Dispensing and Lig Retail; can commence three days earlier if disengaged. Ap 49 Harford Street, Mile End, E. 1 (nearest District Stati Stepney Green).

MR. HUBERT B. FIGG, Pharmacist, Berkhamsted, has vacancy for an unqualified Assistant (lady preferred). St age, height, experience, references, salary required (outdoors), when disengaged. If possible, enclose photo, to be returned.

MESSRS. TIMOTHY WHITE CO., LTD., Chemists, Portsmou require a capable Pharmacist; easy hours; good and gressive salary, with excellent prospects; free removal.

S.E.—UNQUALIFIED, for Dispensing; no Retail; ho 9.30 a.m. to 1 p.m., 6 p.m. to 9 or 9.30 p.m., alt nate Sundays 7 p.m. to 9 p.m. State experience and salary quired by letter, in first instance, to 137/23, Office of this Pa

SMART Junior Assistant wanted (at once) for busy cash b ness in S.W. London; outdoors. Apply, stating age, exp ence, and salary required, 136/21, Office of this Paper.

THE Governing Body of the Battersea Polytechnic require services of a part-time Lecturer (4 periods day-time 1 period evening per week) in Pharmacy, Dispensing, and Mat Medica. For particulars send stamped addressed envelope to Secretary, Battersea Polytechnic, London, S.W. 11.

WANTED, a competent Assistant, chiefly for Dispensing, four weeks from September 4th. James H. Brown, Market Hill, Sudbury, Suffolk.

WANTED, unqualified Assistant for small branch proprict and speciality business; pushing man; permanent; sal and commission. Hulme's, Chemist, Nottingham.

WANTED, for September 1st, a thoroughly reliable unqualif male Assistant, about 20; must have had good Dispens experience and a knowledge of Photography. Apply, giving particulars in first letter as to experience and salary requi (outdoors), and enclosing photo, to Bailey, 64 High Street, Hi gate, N. 6.

WANTED, Manager, qualified, married, not over 35 years age, to manage a new branch in Aldershot; house attach kindly state salary required. Allen & Lloyd, Aldershot.

VANTED, experienced Lady Assistant; smart and obliging; must have good experience; usual hours. Please state salary, perience, and references, and when disengaged, to Gibbs, emist, Berkhamsted.

VANTED, unqualified Assistant, with good, plain, common-sense experience; live out; dinner and tea in; short hours; Sunday duty; knowledge of Photography desirable; age no if capable. Apply, stating salary, Wyatt, Broadway, Barnes, V. 13.

VANTED, competent Qualified Assistant, accustomed to good-class Retail and Photographic business. State age, height, mer experience, salary required, with references, to Lewis, 4 Hinckley Road, Leicester.

WHOLESALE.

e Advertiser may, if preferred, have replies addressed to this Office, and forwarded on payment of an additional charge of 1/-.

ONDON Traveller wanted for the sale of Medicinal Gelatine Capsules by old-established house with connection; salary d commission. Reply P.C.B. 9/22, Office of this Paper.

VEST RIDING.—A limited company requires the services of a Confidential Clerk, for Checking Goods and Invoices, ckkeeping, Ordering, and Attending to Correspondence; short-nd-typist kept. Apply, stating experience, references, and ary expected, to 137/19, Office of this Paper.

SPLENDID SIDE-LINE.—Wanted, gentlemen calling upon Chemists, London, South and Western Counties, also Scot-d, to introduce Killeze Tablets, world's greatest destroyer of kroaches, beetles, and crickets, in 3d., 6d., and 1s. boxes; d showcards, etc. Apply Porters, Limited, Platt Street, Black-d.

DVERTISING MANAGER.—Firm of Manufacturing Chemists making, besides Pharmaceutical preparations, a well-known alid Food which is nationally advertised, require the services a competent Manager for Publicity Department; knowledge Pharmaceutical, Medical, and Public Press copy writing and going of display material are the necessary qualifications for post; letters of application should be in applicants' own hand-iting, giving fullest particulars of education, experience; age commencing salary required should be stated. Apply A. B. /17W), Office of this Paper.

RUG Traveller wanted; Leicestershire, Northamptonshire, and Eastern Counties; state age, experience, etc. Apply 1/17A, ce of this Paper.

EPRESENTATIVE wanted on commission basis and part ex penses; Druggist sundries; London only. Apply, in first ance, to 43/15W, Office of this Paper.

ESIDENT REPRESENTATIVES WANTED.—An important group of companies desire to appoint Resident Representa-s throughout the United Kingdom and Ireland to extend the es of their high-class Toilet Goods, Tonic Foods, Photographic pers and Cards, etc.; only Salesmen with established con-tions amongst Chemists in their respective areas and desirous securing permanent, profitable posts, on sound commission is should write in strict confidence, giving fullest particulars to experience and ground covered, to Box. No. 848, c/o Street Co., Ltd., 8 Serle Street, Lincoln's Inn Fields, London.

RAVELLERS wanted to carry well-known Proprietary article as side-line. Kraska, 7 Blenheim Street, W. 1.

VANTED, for Surgical Department in provincial business, a General Assistant with some knowledge of Belt and Truss ng. Apply, stating age, experience, and salary required, to /13, Office of this Paper.

VANTED, in London office of firm of Chemical Manufacturers, a really live business man, about 24-25, of good education address; must be a good correspondent and have a knowledge rade and general business methods; ability for application be preferable to wide experience. Apply in first instance, ng full particulars as to age, experience, salary required, etc., 137/21, Office of this Paper.

VORKS Chemist and Manager required by London Wholesale Druggists. State experience and salary required to "M." /16W), Office of this Paper.

OUNG Chemist wanted by well-known Manufacturers (Toilet Trade) as Assistant at Works; Testing, Analytical Work, Supervision. State qualifications and salary required, 1. B. (9/10E), Office of this Paper.

SITUATIONS OPEN.

(Colonial, Indian and Foreign.)

BRITISH EAST AFRICA.—Wanted, Chemist's young, qualified Assistant; three years' engagement; salary monthly £25, £30, £35 respectively; second-class return passage paid; Photographic knowledge desirable. Apply by letter, stating nge, qualifications, and experience, "Chemist," c/o Davis & Soper, Ltd., 54 St. Mary Axe, E.C. 3.

FLORENCE, ITALY.—Smart qualified Junior of good appearance and address, about 25 years of age and unmarried, chiefly for front Counter; previous Continental experience not essential; state full particulars and enclose photo, to be returned. H. Roberts & Co., Chemists, Florence.

HONG KONG.—Required (at once), qualified Assistant, age 25 to 30, unmarried, with first-class Dispensing experience, for Pharmacy in Hong Kong; three years' agreement; salary 350 Mexican dollars a month for first year, 375 for second year, and 400 for third year; second-class passage out and home; an application form for completion will be forwarded to candidates on request. Lakin Brothers, Limited, 82 Middlesex Street, London.

NICE.—Required, November to May, good first-class Dispenser, with knowledge of French preferred, not necessarily qualified; congenial surroundings; generous terms to suitable applicant. Applications in first instance to "A. J. H." (9/8E), Office of this Paper.

SHANGHAI.—Qualified Assistant wanted; unmarried; age 21-35; must be of temperate habits; second-class passage out and home; four years' agreement. Apply "E. H." (9/7E), Office of this Paper.

SOUTH AFRICA.—Young, qualified Assistants open to accept situations in South Africa, should apply to Lennon, Limited, 12-14 Lafone Street, Tower Bridge, London, S.E. 1. South Africa is prosperous and advancing steadily; the olimate is particularly fine and healthy; cost of living moderate.

SPANISH and Portuguese Correspondent (Typist) wanted; a capable ma. with export experience. Particulars, stating age and salary required, to the Secretary, Baiss Bros. & Co., Ltd., Wholesale and Export Druggists, 174/176 Grange Road, Bermondsey, S.E.

SITUATIONS WANTED.

[HOME.]

RETAIL.

2s. for 18 words or less; 6d. for every additional 10 words or less, prepaid.

The **Advertiser** may, if preferred, have replies addressed to this Office, and forwarded on payment of an additional charge of 1/-.

A CAPABLE and conscientious M.P.S. wants position in Lancashire; Bolton or Manchester preferred; excellent references; good experience in all classes of business, and satisfaction guaranteed; free in October. Apply 139/3, Office of this Paper.

A PHARMACIST, 32, reliable and quick Dispenser, with knowledge of Photography, not afraid of work, seeks position in good-class Pharmacy. Green, 4 South Park Parade, Ilford.

A PHARMACIST with wide experience desires management; disengaged the beginning of September. Duckett, 4 St. Andrews Square, Surbiton.

A QUALIFIED Manager (42), married; permanency; thoroughly experienced; Prescriber and good Counterman. H. R., 473 Blackburn Road, Oswaldtwistle, near Blackburn.

A QUALIFIED Scotsman desires permanency; tall, young, and of good address; first-class Dispensing and General Retail experience; Branch Manager or Assistant; well recommended. 135/3, Office of this Paper.

ADVERTISER desires post in London as Manager, with option of purchasing business. H. L. M., 51 Marlboro' Road, Wimbledon Park.

ADVERTISER, 40, married, wishes berth as qualified Manager, when house available; would invest. "M.P.S.," 18 King Gardens, Plymouth.

AS qualified Manager or Locum; disengaged; good all-round experience; town or country. J. Fraser, 139 High Road, East Finchley, N. 2.

ASSISTANT; unqualified; 24; experienced in first-class Dispensing and Counter; Midlands preferred, not essential. Apply 135/32, Office of this Paper.

ASSISTANT; 31, single; thoroughly competent; passed Part I.; 15 years' experience Dispensing and Counter; excellent references; Locum or permanency. "Statim," Gorsefield, Grange Road, Rhyl.

ASSISTANT, with one subject to qualify, desires post in London, with view to purchasing the business within three months. A. J., 27 Home Park Road, Wimbledon, S.W. 19.

ASSISTANT or Manager; 33; unqualified; abstainer; reliable; Dispensing, Prescriber, Photography; Midlands or North preferred; disengaged August 27th. Apply 137/20, Office of this Paper.

ASSISTANT, unqualified (25); Dispensing, Counter, and Photographic experience; kindly state salary, etc. "Statim," 5 Wellington Street, Redditch, Worcs.

ASSISTANT; unqualified; 25; Burnley district preferred; good knowledge of Photography; excellent references. Pharmacy, 15 Church Street, Colne.

ASSISTANT; 26; 11 years' first-class Dispensing-business experience; energetic and accurate; state particulars, hours, etc. "Provincial" (137/37), Office of this Paper.

BOURNEMOUTH or S.W. ENGLAND.—Qualified, young, requires Locum or permanent post. "Pharmacist," 7 Stanfield Road, Winton, Bournemouth.

BRANCH Manager, Locum, or Assistant; 25 years' experience; unqualified; good Dispenser, Salesman. "Statim," Brookside, Eastwood Road, Leigh, Essex.

BRISTOL.—Part-time or permanent post required by reliable man; Stock, Dispensing, etc. Apply 137/32, Office of this Paper.

CHEMIST'S daughter seeks post as part-time Improver; age 18; two years' experience; well educated; S.E. district. Apply 135/14, Office of this Paper.

CHEMIST'S Son seeks good-class berth, preparatory to taking Minor; age 26; used to good middle-class business; excellent references. P.C.B. 9/5, Office of this Paper.

CLERICAL.—Evening work of any kind; writing up accounts and posting up books; terms moderate. Write "F. G." (124/34), Office of this Paper.

DISPENSER, Bookkeeper, or Secretary, disengaged, 15 years' varied experience, including Retail, seeks situation; town or country; married; Hall qualification; good references; not afraid of work; kindly state salary, etc. Apply "Statim" (136/24), Office of this Paper.

DISPENSER (lady) requires post; thoroughly experienced and well recommended; Secretarial duties if desired. Apply 137/5, Office of this Paper.

ELDERLY, single; Manager or otherwise; all-round experience; qualified, competent, reliable; disengaged; moderate salary. "Chemdental," 35 Hatcham Park Road, S.E. 14.

ELDERLY qualified Assistant; active; permanency; experienced Dispenser; disengaged; good references (London). "Wilson," 31 Alexander Street, Bayswater, W.

HIGH-CLASS Assistant (lady) desires post with Chemist or Doctor; 8 years' experience Dispensing, Retail, and Photography; unqualified. Apply 137/12, Office of this Paper.

IMMEDIATELY.—Assistant, Manager, Locum; any period; thoroughly competent; experienced all round; certain satisfaction given. "Disengaged," 239 Camberwell New Road, S.E. 5.

IMPROVER; age 21; one year's good experience with Chemist; tail, well educated; passed College Preceptors if indoors; no salary; London or country. "Tangent" (F.C.B. 9/4), Office of this Paper.

JUNIOR, good at Dispensing and French, just completed West-End apprenticeship, London Matric., 6 feet, smart, keen, and willing, desires Assistantship in good London business, with time to attend some evening classes. H. N. L., 46 Compton Road, N. 21.

L.P.S.I., 30. 5 ft. 9 in., free, seven years' pre-war, one year post-war experience, Dublin and Harrogate, seeks position in London; ex-N.C.O.; excellent references. Apply 136/25, Office of this Paper.

LADY Dispenser (Hall) desires Locum post until end of August. Miss Rawcliffe, 187 Watling Road, Fulwood, Preston, Lancs.

LADY Dispenser (Hall) requires Locum or permanent post; Hospital experience; excellent testimonials; disengaged. Leeder, Drayoot Road Wanstead, E. 11.

LADY (Hall), many years' experience private and institution, desires post as Dispenser; preferably Dulwich district. Address Salop, 56 Dovercourt Road, East Dulwich.

LOCUM; unqualified; good all-round experience Pharmacy, Counter work, Photography, Prescribing, etc.; disengaged immediately. "Quicksilver," Rotherwas, Deddington, Oxon.

LOCUM; qualified; young; disengaged August 22nd to September 19th; experienced first-class Dispensing, etc.; well recommended; any district, but Lancashire preferred. Rushton, 64 Denmark Road, Churchtown, Southport.

LOCUM TENENS or part-time, qualified, 52, active, or would consider purchase or partnership. "W. B.," 22 Ellison Road, Barnes, S.W.

LOCUM or otherwise; qualified; 29; disengaged; energetic and reliable; moderate terms. "M. E. T.," 167 Caerleon Road, Newport, Mon.

LOCUM or permanency; qualified; 43; disengaged; excellent Retail and Dispensing experience; references. Chemist, 183 Alfreton Road, Nottingham.

LOCUM or part-time, disengaged 20th inst. and September 11th; wide experience; qualified Dispenser; good references. "Statim," 82 Dahomey Road, Streatham.

LOCUM (qualified) desires engagements from August to October; Northern Counties preferred; reasonable terms. Dobson, Peters Mount, Bramley, Leeds.

LOCUM or Manager; view succession not objected to; free September 3rd. Chemist, 58 Anerley Road, S.E. 19.

LOCUM, disengaged September 12th; highest references; well recommended. Brown, 37 The Grove, Kettering, Northants.

LOCUM, qualified, 30, good experience, requires post; disengaged August 22nd to September 11th. Apply 137/4, Office of this Paper.

LOCUM-TENENS, middle-aged, all-round experience, disengaged September 1. "Locum-Tenens," 232 Corporation Road, Newport, Mon.

M.P.S., disengaged, seeks permanency; experienced all departments, including Photography and Optics. "Reynard," 4b Cavendish Parade, Clapham Common, S.W. 4.

M.P.S., F.S.M.C., young, energetic, requires position in London; would build up Optical connection. "Kismet," 167 High Street, Southend.

M.P.S. (lady) desires post to learn Retail; end September; Bristol or district. Apply 128/23, Office of this Paper.

M.P.S. (24) desires post in Retail business; temporary or permanent. Terms to A. C. Nixon, Ghyll Bank School, Whitehaven.

MANAGER or Senior; 38; 25 years' experience; disengaged end of September; single; brisk cash Retail desired. Apply 136/7, Office of this Paper.

MANAGER or Locum; married; qualified; wide experience; energetic; highest references; London or country; disengaged second week September. Williams, c/o Gaze & Co., Highams Park, London, E. 4.

MANAGER; qualified; long experience London and country in all branches; married; permanency; smart Window-dresser, Prescriber, and Dispenser. Particulars, with salary, to "D.S.F.I." (137/25), Office of this Paper.

MANAGER or Senior; 38; qualified; first-class experience as Assistant and Manager; good organiser; fluent French; town or country; disengaged. Scott, 57 Cartwright Gardens, W.C. 1.

MANAGER; unqualified; thoroughly capable and energetic; highest references; well up; London or near preferred; abstainer. "H." (138/22), Office of this Paper.

MANAGING Assistant, 40, unqualified, 25 years' all-round experience, shortly disengaged; state salary. "Reliable," 1 Belle Vue, Pinner, Middlesex.

MANCHESTER DISTRICT.—Pharmacist, 25, single, desires position immediately; highest references; salary £5 5s. Douglas, 162 Elizabeth Street, Hightown, Manchester.

MANCHESTER or DISTRICT.—Qualified; single; last situation nearly nine years, Branch Manager; state salary, etc. Apply 35/40, Office of this Paper.

MERIT v. Salary.—Demobbed Officer, Qualified (27), desires position, or with view to succession; first three months £5 5s. er week, then increase according to merit. Brocklesby, Conisbro, Rotherham.

PARRIS & GREENING, Hove, have every confidence in recommending their late Apprentice, recently qualified, to anyone n want of a first-class Assistant; Brighton or surrounding districts preferred. Apply Miss Jacks, 18 Lawrence Road, Hove.

PART-TIME; Minor Student; competent; Dispensing, Retail, etc.; one full day and evenings by arrangement. Address 38/13, Office of this Paper.

PART-TIME; Major student; Dispensing or Laboratory; London district. "Anti-Gasser" (4/47B), Office of this Paper.

PERMANENCY; unqualified (47); disengaged now or a month hence; excellent references. "F.," 4 Wentworth Road, anor Park, E. 12.

PHARMACIST desires post; disengaged; 24; tall; good Dispensing and Retail experience; excellent references. Page, ydell Crescent, Boston.

PHARMACIST, 24, desires position; town South of England. Apply "Scotchman" (123/29, Office of this Paper.

PHARMACIST, disengaged August 30; experienced; Locum or permanent; London or country. Peacock, 48 Cumberland treet, S.W. 1.

PHARMACIST, middle-aged, recently disposed own business, open for engagement; position desired as Manager; disgaged. Write "X." (138/17), Office of this Paper.

PHARMACIST'S son, qualified, age 22; good Dispensing and Photographic experience; in- or out-doors. Apply 135/37, fice of this Paper.

QUALIFIED; 25; Retail and Dispensing experience; in touch with business and current prices during study. Apply 56/17, Office of this Paper.

QUALIFIED, 27, married (ex-officer), desires responsible position; modern and general Retail experience, with Photoaphy; tall and smart appearance; abstainer; excellent referces; disengaged September 6th. Apply 136/36, Office of this per.

QUALIFIED (26), tall, desires position; experience in good-class Pharmacies; excellent references; Northern Counties prered. Terms to 136/30, Office of this Paper.

QUALIFIED recently (24), desires permanency; London or suburbs; free September 6th; interview arranged. Wicks, Williams, Chemist, Hampstead.

QUALIFIED, 24, single, desires post in either Wholesale or Retail; temporary or permanent; Dispensing and Photoaphic experience; London, West-End or suburbs preferred, hut t essential; disengaged 23rd inst. Edwards, c/o 55 New Road, are, Herts.

QUALIFIED; 27; Assistant or Manager; good Dispensing and general experience; excellent references; disengaged. R. timer, Loughborough.

QUALIFIED; 26; energetic worker; good Dispensing and Counter experience; excellent references; can commence mediately. Gray, New Street, Cockermouth.

QUALIFIED, lady, "Square" trained, requires post in goodolass Pharmacy; good references; free September. Moss, ossbank," Coedpoeth, Wrexham.

QUALIFIED (26) desires post; first-class experience and references; Midlands preferred, not essential. Jones, rvonia," Portmadoc, N. Wales.

QUALIFIED; 36; abstainer; Manager or Assistant; experienced; disengaged soon; married; reliable. C. E. Beer, c/o Jones, Norwood Road, S.E

QUALIFIED (22) requires post at once; any district "M.P.S.," Kyrtonia, Lympstone, Devon.

QUALIFIED (26); Manager or Assistant; London district; disengaged September 4th. P.C.B. 9/3, Office of this Paper.

QUALIFIED (22), tall, desires post as Manager or Assistant; six years' experience in good-class business; well recommended. J. H. Stancliffe, Highfield Road, Idle, Bradford.

QUALIFIED, 36, desires post immediately as Manager or Senior; 18 years' experience London and provinces; Dispensing, Prescribing, Photographics, Windows, Counter. Usual particulars to "M.," The Mall, Milford, Surrey.

QUALIFIED, 24, tall, desires post, temporary or permanent, Manager or Assistant; good experience; free September 13th; North or Midlands preferred. Terms to W. Lister, Alexander Street, Claremount, Halifax.

QUALIFIED, 30, experienced, active, seeks permanency; Dispensing, Counter, Photographic. "Chemist," 87 Highlever Road, N. Kensington, W. 10.

QUALIFIED (27); 5 ft. 9 in.; good Dispensing and Counter experience; good references. C. Jay, Station Road, Sudbury, Suffolk.

QUALIFIED (35) requires temporary post; capable, energetic; excellent references. Hiscoe, 34 Windsor Terrace, Gateshead-on-Tyne.

QUALIFIED (26), tall, desires post as Manager or Assistant; good all-round experience, references. Beaumont, Stanley Street, Lindley, Huddersfield.

QUALIFIED (30); Branch Manager; experienced; well recommended; salary £6 per week; disengaged August 24th; abstainer. Apply 137/28, Office of this Paper.

QUALIFIED (23) seeks situation; permanent or temporary; free now. Please write Welch, 254 Heathfield Road, Birchfields, Birmingham.

QUALIFIED; 32; single; good references; disengaged August 29; Midlands or North preferred; Locum or permanent. "O.," 10 Burnley Road, Stockwell, S.W. 9.

QUALIFIED, Locum or permanent, disengaged August 31st; good experience and references; Stores or private. Furnival, 28 Melrose Avenue, Cricklewood.

QUALIFIED; 49; active; experienced; thoroughly trustworthy, painstaking; abstainer; recently resigned very successful lengthy Branch Management; first-class references last and former employers; reasonable salary; any suitable post. Apply 138/2, Office of this Paper.

QUALIFIED (23), disengaged August 28; seeks berth in good-class business, Midlands. Apply 137/34, Office of this Paper.

UNQUALIFIED Assistant desires post; Liverpool or Cheshire districts; four years' experience in high-class Dispensing and Counter work; knowledge of Bookkeeping and Typewriting. "Statim," 11 Coxon Street, Sunderland.

YOUNG lady (20) requires post with Dispensing Chemist; completing studies; free end of August. Apply 128/25, Office of this Paper.

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2s. for 18 words or less: 6d. for every additional 10 words or less, prepaid.

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IRISH Traveller, qualified Druggist, wants post for 1st September; late representative for London sundries firm over all Ireland; first-class connection; sole representation or on commission basis. Apply 134/36, Office of this Paper.

PART-TIME; Major student; Dispensing or Laboratory; London district. "Anti-Gasser" (4/470B), Office of this Paper.

REPRESENTATIVE (28), sound connection amongst Chemists and Stores in Birmingham and Midland Counties, open to represent first-class Drug and Sundry house or well-advertised Proprietaries; undeniable references; 12 years' experience in the trade; salary and commission basis. Apply "Ennismore" (139/100), Office of this Paper.

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ARTIFICIAL Sassafras Oil, D. and O., 5 cwt.; Sodium Fluoride, 10 cwt.; Safrol S.G. 1.100 and 1.070, 5 cwt. offered in drum and 28 lb. tins; Finest Pyrethrum Powder (E. brand), 1¾ cwt.; offers solicited. Apply 5/24C, Office of this Paper.

CARBONATE OF POTASH B.P.—For Sale, 8 cwt.; immediate delivery; cheap to clear. Apply 137/14, Office of this Paper.

SHOP FITTINGS.—10′ 0″ Mahogany Serving Counter with Glass Cases in front; 6′ 0″ bent plate-glass Counter Showcase; 8′ 0″ Wall Showcase; several Drug Fittings and Dispensing Screens, Silent Salesman Showcases and Counters; every size. Write, stating wants, Philip Josephs & Sons, Ltd., 93 Old Street, London, E.C. 1.

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Special quotations to large buyers.
HENRY W. SCURR, HENRY RD., SLOUGH

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Advertisers are prepared to undertake the blending of Shampoo, Tooth, and other Toilet Powders, in large or small quantities at lowest possible rates. Good workmanship and prompt delivery. Ingredients supplied if desired at lowest market prices. Write stating requirements.
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Twopence per word: Minimum 2s.

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FOR DISPOSAL.

10 CWT. Fuller's Earth, 2-cwt. bags, 15s. each, carriage forw whole or part, cheap to clear. Wain, Chemist, Longton, St

DENTAL.

8 DENTAL Forceps; good condition; 25s.; bargain; appr deposit. "Dental," 100A Bellenden Road, Peckham.

DRUGS AND CHEMICALS.

28 LB. Salammoniac, 19s. March, 41 Newcomen Street, S.1
SURPLUS Stock White Lint, 14 lb., 4s. 10d. lb; carriage o.w.o. Bailey, Chemist, Sutton-in-Ashfield.

OPTICAL AND PHOTOGRAPHIC.

SANDERSON 12 × 10 Camera, Ross lens, 6 Slides; ch Clear, Chemist, Leicester.

WANTED.

PHARMACEUTICAL Books wanted; cash offers on rec Gower, Bookseller, 41 Voltaire Road, Clapham.

OPTICAL SIGN (outdoors), with or without gas illumina Please state condition, size, and lowest price, photo (if sible), Pearson, Woolston, Southampton.

DAMAGED or discarded Dispensing Scales, Showcases, and Lab tory Apparatus; good value given. R. P. Kernick, 47 Q Street, Cardiff.

WANTED, Radium Salt, pure or Residues, old Applicators, Apply Harrison Glew, Radium Laboratories, 156 Clap Road, S.W. 9.

RIPE Mulberries, up to 5 cwt. State quantity and pric C. R. Harker, Stagg & Morgan, Ltd., Devon Wharf, End, E. 1.

CHEMISTS' BOOKS, Dispensing and Counter Scales, 24 Machine, Cachet Machine, Measures, etc. State lowest p "M.P.S." (138/37), Office of this Paper.

We desire particularly to draw the attention of Colonial Foreign Subscribers to the fact that in cases where t require partners, agents or assistants, or wish to sell t businesses, an advertisement in this Supplement, pl in every copy of "The Chemist and Druggist," shoul the readiest means of helping them to attain their ob The tariff for such announcements is given under the ap priate headings in the Supplement. Instructions and mittances can be sent to us direct or through the ac tisers, correspondents in this country.

Printed for the Proprietors by SPOTTISWOODE, BALLANTYNE & CO., LTD., New Street Square, E.C. 4; and Published by t Proprietors, Morgan Brothers (Publishers), Ltd., at 42 Cannon Street, in the City of London.—*August* 21, 1920. [142]

(JUST RECEIVED.)

August 11th, 1920.

Gentlemen,

I wired you to-day as under—

"Two gross Corn Root Destroyer, named as before."

I have to thank you for your promptness in delivery to my last wire, and apologise for again rushing you, but this thing seems to have caught on, and is going quicker than any Corn Remedy I have handled.

Two dozen of the half-gross sent went off in a day, so I had to hustle to get some more.

Enclosed find cheque £6 14s., invoice of July 14th.

This being a Coast Resort we have to make the most of a short season, so I trust you will be able to send off the C.R.D. without delay.

Yours faithfully,

Printer's Ink makes folks think, and with

"THE WIGGLESWORTH WAY"

MAKES THEM BUY

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Tell us which you are interested in, Liquid, Plasters or Ointment, and we will send you samples and a proposition that will help to pay your rent by the

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CREAM *of* TARTAR COD LIVER OIL

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Printed for the Proprietors by Spottiswoode, Ballantyne & Co. Ltd., New Street Square, E.C. 4, and Published by the Proprietors, Morgan Brothers (Publishers), Ltd., at 42 Cannon Street, in the City of London.—*August* 21, 1920.